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GEAR of the YEAR 2005

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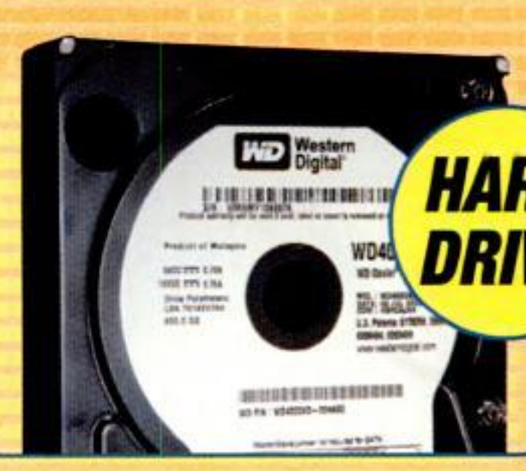
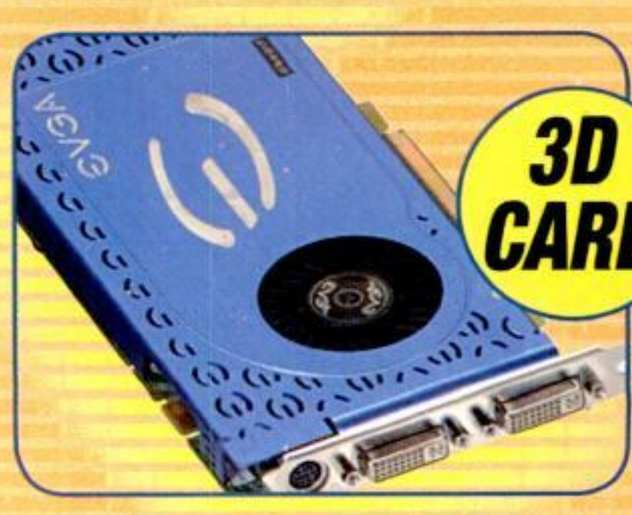


MEDIA PLAYERS

10 Players Reviewed!

Music and Movie Player Buying Guide



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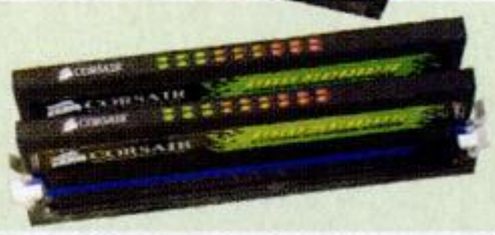

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Contents

Ed Word

Selecting the Best

*Please send feedback and pie to **will@maximumpc.com.***

This year, *Maximum PC* reviewed 420 products. That's a lot of reviews. And each and every product that was reviewed is eligible for our annual "Gear of the Year" story. Although it's easy to outright eliminate the hardware we savaged with bad reviews and low verdicts, there's still a boatload of quality contenders, making the selection process a grueling task.

The whittling goes something like this: First, every editor makes a list of the contenders in his or her category. Some of these lists are short—those in the know will agree that there's only one possible core-logic chipset choice this year—but some of the lists are long. Really, really long. The list of candidates for our Wild Card category—outstanding hardware that doesn't fit into one of our traditional categories—was positively epic!

Next, we lock all the editors in a tiny, poorly lit, spider-infested conference room deep in the bowels of the Maximum PC Complex. Sure, we could use one of our well equipped, modern conference rooms, but squalid conditions motivate us to get the job done faster.

Once we're sealed in the room, the first editor presents the contenders for the first category, and the debate begins. No topic is off-limits—be it fan noise or future upgradeability or even a product's color—and while raw performance is the primary concern, everything about every product is considered before we make our final proclamations. Believe me, the debates are lively—not lively like a political debate, but lively like a soccer riot.

No one leaves until the list is done. There are no bathroom breaks, no food orders, no interruptions whatsoever. There are occasional startling developments: This year we were so torn between two strong contenders for the Wild Card category that we created a new category (Cooling) so as to accommodate both. Drama abounds. This bears repeating: No one leaves the room until the list is done.

If it sounds like a lot of hassle, it is. But it's worth every tear and every drop of blood shed. Sure, we could just pick the products that got the best scores and call it a day, but then I never would have heard one editor call the 10,000rpm Raptor "the hard drive that changed my life," or been privy to the full inventory of another editor's RAIDed 500GB Deskstars.

So I hope you guys enjoy "Gear of the Year." It's on page 24. As you're reading it, remember that six editors went through hell to get it to you.

Will Smith

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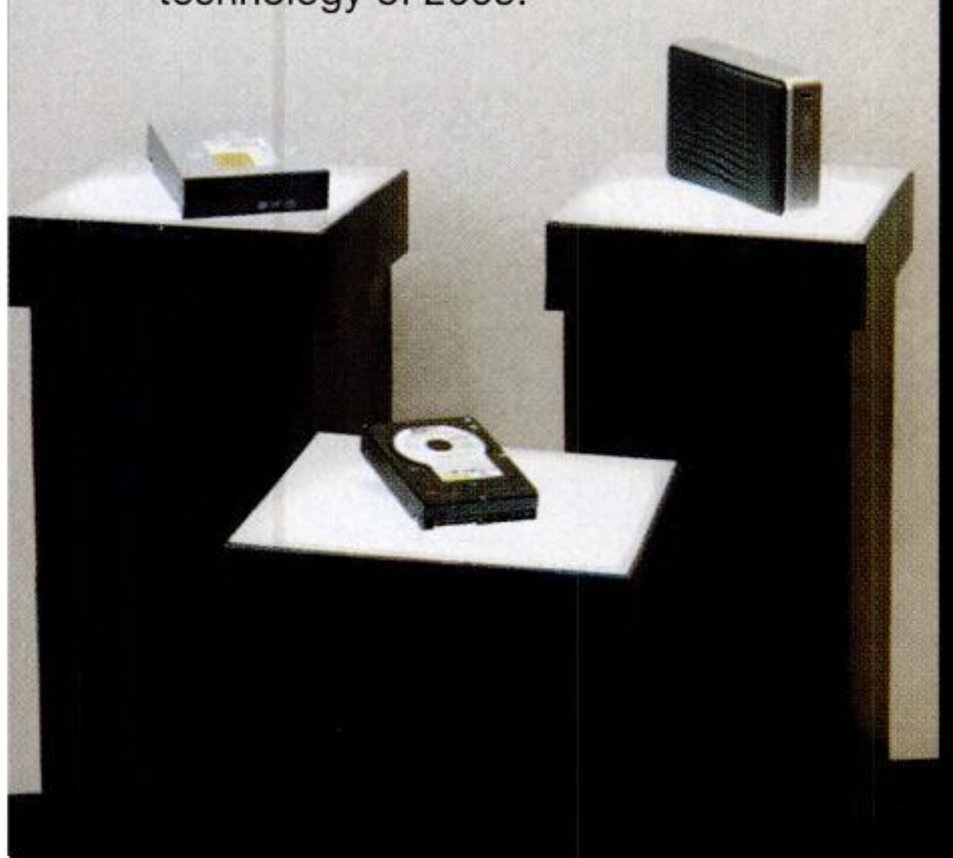
24 Gear of the Year
The fastest. The toughest. The sexiest. The bleeding-edgiest PC technology of 2005.



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EDITOR IN CHIEF **Will Smith**
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CONTRIBUTING WRITERS **Norman Chan, Tom Halfhill, Thomas McDonald**

ART
ART DIRECTOR **Natalie Jeday**
ASSOCIATE ART DIRECTOR **Boni Uzilevsky**
PHOTO EDITOR **Mark Madeo**
ASSOCIATE PHOTOGRAPHER **Samantha Berg**

BUSINESS
PUBLISHER **Bernard Lanigan**
646-723-5405, blanigan@futurenetworkusa.com
SOUTH WESTERN AD DIRECTOR **Dave Lynn**
949-360-4443, dlynn@futurenetworkusa.com
SOUTH WESTERN AD MANAGER **Issac Ugay**
562-983-8018, iugay@futurenetworkusa.com
NORTH WESTERN AD DIRECTOR **Stacey Levy**
925-964-1205, slevy@futurenetworkusa.com
EASTERN AD DIRECTOR **Anthony Danzi**
646-723-5453, adanzi@futurenetworkusa.com
EASTERN AD MANAGER **Larry Presser**
646-723-5459, lpresser@futurenetworkusa.com
NATIONAL SALES MANAGER, ENTERTAINMENT **Nate Hunt**
415-656-8536, nhunt@futurenetworkusa.com
ADVERTISING COORDINATOR **Jose Urrutia**
415-656-8313, jurrutia@futurenetworkusa.com
MARKETING MANAGER **Kathleen Reilly**
MARKETING COORDINATOR **Tara Wong**

PRODUCTION
PRODUCTION DIRECTOR **Richie Lesovoy**
PRODUCTION COORDINATOR **Dan Mallory**

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FUTURE plc
30 Monmouth St., Bath, Avon, BA1 2BW, England
www.futureplc.com
Tel +44 1225 442244

NON EXECUTIVE CHAIRMAN: **Roger Parry**
CHIEF EXECUTIVE: **Greg Ingham**
GROUP FINANCE DIRECTOR: **John Bowman**
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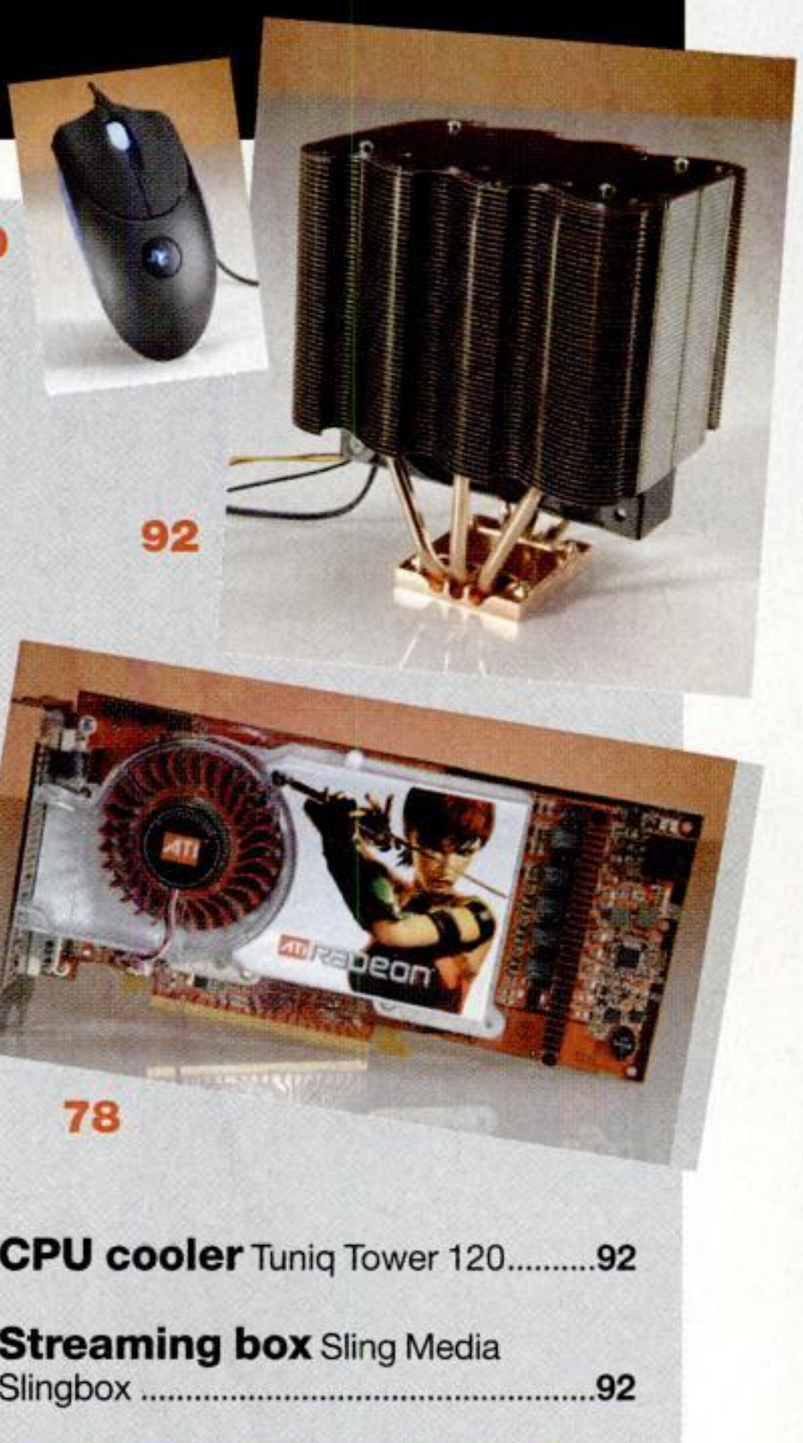

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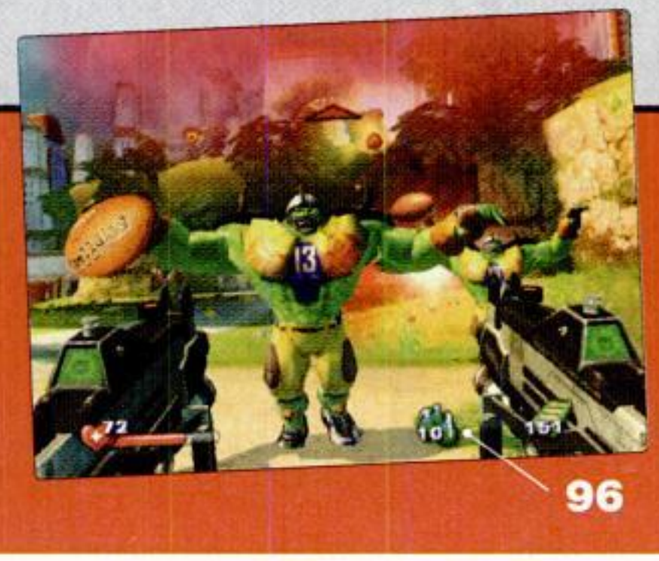

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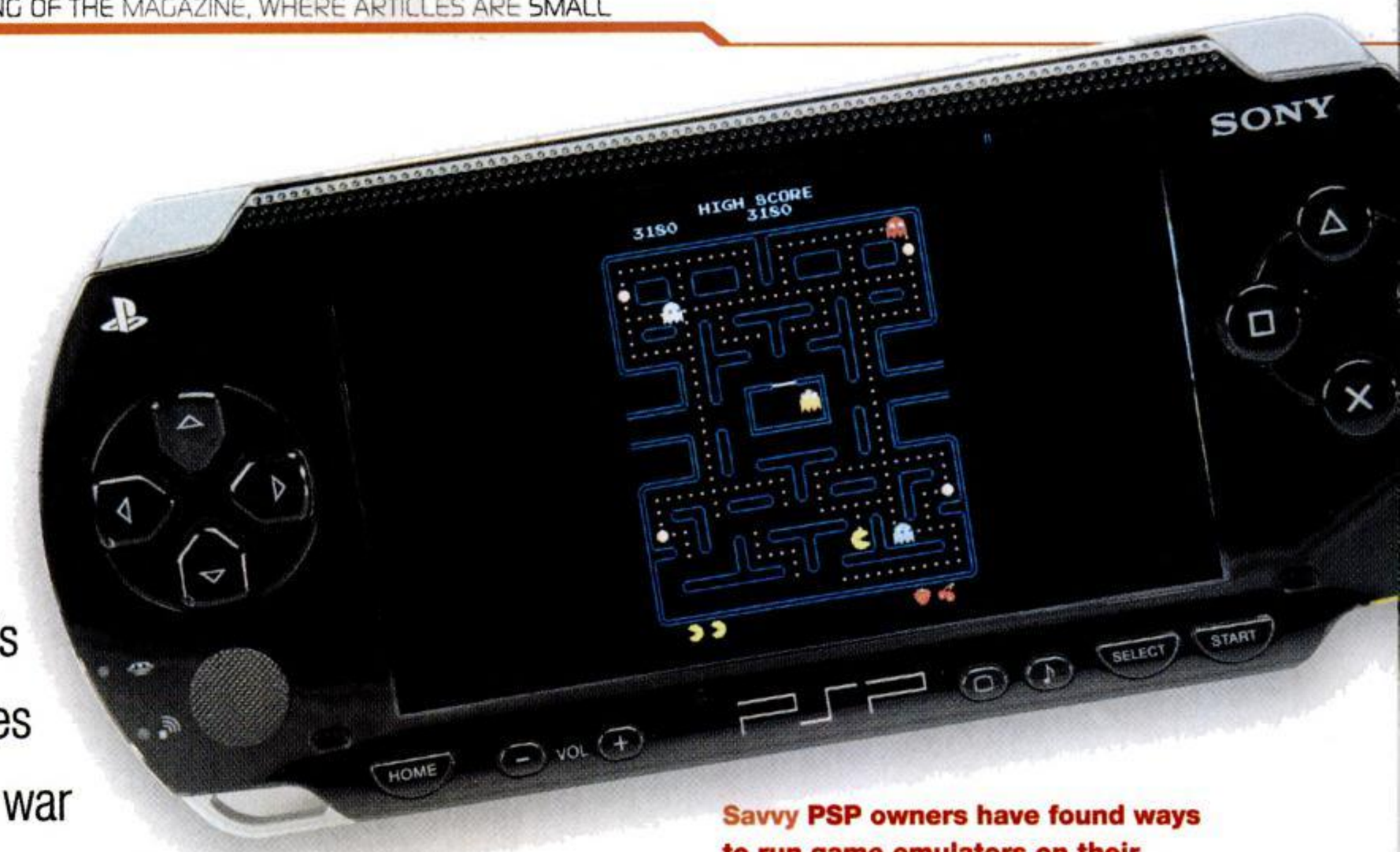
DRM Watch!

This battle between consumers and The Man is heating up. These are notes from the front lines of the war against digital-rights management



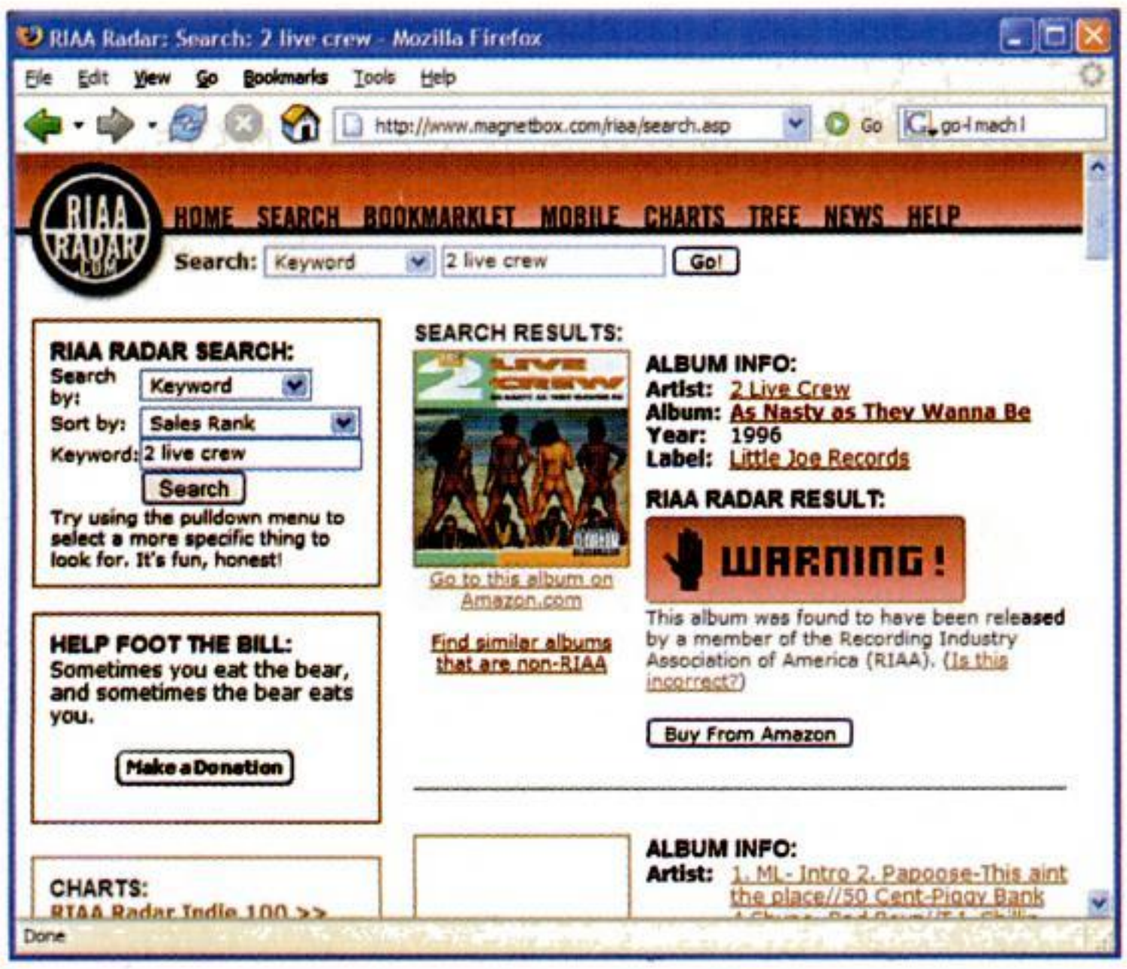
Savvy PSP owners have found ways to run game emulators on their handhelds, but Sony is working hard to put a stop to it.

MOVIELABS: THE DARPA OF HOLLYWOOD

Also known as Motion Picture Laboratories Inc., MovieLabs is a nonprofit research project funded by studios including 20th Century Fox, Universal, Paramount, Sony, and Warner Brothers, to the tune of $30 million dollars. It's dedicated to improving the quality of Hollywood films. Ha ha—just kidding! Instead, the money will be spent developing technologies to make the images of movies recorded via camcorder worse than they already are, to prevent unauthorized users from tapping into your home network to steal your movies (which is, you know, a *huge* problem), and to create network tools that sniff out packets that contain copyrighted material—although how these sentient sniffers know if a file is copyrighted is anybody's guess.

SONY TO PSP OWNERS: OH NO YOU DON'T

Sony has been aggressively updating the firmware on its PlayStation Portable ever since the initial release of the device last March, fixing minor bugs and adding new features such as a slick web browser, AAC audio support, and support for video packaged with DRM. But there might be another reason why Sony appears so industrious—each firmware update also patches security holes that can be exploited to run unauthorized code, such as emulators for games originally developed for other gaming systems (from which Sony receives no license fee). The kicker is that new PSP games automatically install these firmware updates and require them in order to run.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The RIAA Radar online tool lets you see if a prospective album purchase will benefit the RIAA or not.

MICROSOFT: CONSUMER ADVOCATE?

Bill Gates reiterated Microsoft's support for HD-DVD, calling the DRM on Blu-ray discs "anti-consumer" (which is weird coming from a guy who supports a "Trusted Path" DRM video standard that will display high-definition video on only DRM-compliant monitors). At issue is a feature called "Managed Copy," which permits limited copying for personal use (such as copying a disc to your hard drive for streaming to any television in the house). While both high-capacity DVD formats support Managed Copy, only HD-DVD makes it mandatory for all discs, which works well for companies that, say, make operating systems that act as "media centers" in your living room.

KEEP THE RIAA ON YOUR RADAR

If you're sick of the Recording Industry Association of America (RIAA) suing the pants off 12-year-olds for copyright infringement, and don't want to end up in court yourself, you can now find out if a particular album is produced by an RIAA affiliate prior to purchase. Just surf to **www.magnetbox.com/riaa/** and type in the album name to see if it's free from the RIAA's clutches.

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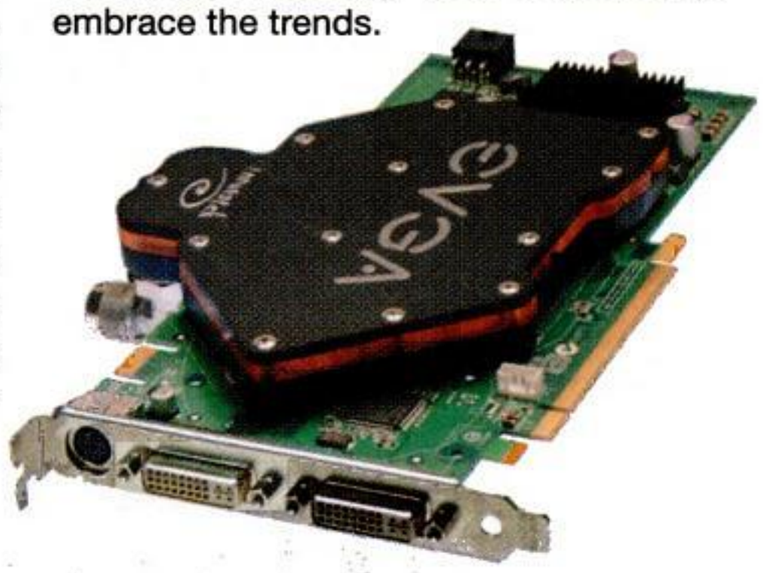
Water-Cooled Videocards Splash onto the Scene

Preinstalled water blocks take the risk out of extreme VGA cooling

Installing a water-cooling kit on your CPU is no big deal because there's a heat spreader on the core to prevent it from being cracked during installation. Videocards, on the other hand, have exposed cores, so ratcheting a copper block down onto your $600 GPU takes courage—or at least it used to. The latest trend in VGA cooling is cards that have preinstalled water blocks, making the process of adding your VGA card to a pre-existing cooling circuit relatively risk-free. So far BFG, Gainward, and EVGA have announced water-cooled videocards, and hopefully more vendors will embrace the trends.



Rumor Mill

Intel to Change Chip-Labeling System–Again

If what we hear is true, the new CPU names won't be any clearer

According to a story published by TheInquirer.com, Intel is about to change its Byzantine chip-numbering system to a new system that is only slightly less convoluted. Purportedly, the new system is similar to Intel's current naming scheme; a combination of numbers and letters will identify each part's basic features. The first symbol will be a letter representing the CPU's class (high-power, low-power, etc.), and the second symbol will be a number identifying the family to which the CPU belongs (workstation, desktop, mobile, etc.). There will be one more letter or number, designating speed, followed by two zeros that apparently have no meaning at all.

Intel's upcoming dual-core notebook processor, code-named Yonah, will be the first to use the system. Under this scheme, a standard Yonah would be labeled T1x00, while low-voltage parts will be identified as L1x00 and ultra-low-voltage chips will be dubbed U1x00.

Got an industry rumor? Send it to **rumors@maximumpc.com**

FAST FORWARD

TOM **HALFHILL**

Sizing Up Multicore Processors

If two processor cores are better than one, can we evaluate multicore chips simply by counting cores? Unfortunately, we can't. That would be as misleading as judging single-core processors solely by their clock speeds, and everybody knows how that turned out.

All multicore processors are not created equal. They have profound differences that greatly affect their performance. Before the marketing schemers at AMD and Intel corrupt your mind with propaganda, consider some important aspects of multicore designs.

One factor is the microarchitecture of the cores replicated on the chip. For now, AMD and Intel are using processor cores originally designed for single-core chips, because that's all they've got. Multicore PC processors are so new that neither company has had time to create entirely new cores. I think Intel has a slight edge, because its latest multicore processor (Yonah, expected in January) has two cores derived from the low-power Pentium M (Banias) microarchitecture. AMD's cores aren't quite as power-optimized.

Another factor is whether the multiple cores are homogenous or heterogeneous. Homogenous means all the cores are the same, and so far, that describes all the multicore chips announced by AMD and Intel. Someday we may see heterogeneous designs with different cores optimized for different software workloads.

Another very important factor is how the cores communicate with each other. There are numerous options. AMD's first dual-core processor, the Opteron 800, has a sophisticated on-chip link called a crossbar switch. In comparison, Intel's first dual-core processor, the Pentium EE 840, looks like a duct-tape job. Under pressure to match AMD's multicore introduction, Intel crammed two Prescott Pentium 4 cores on the chip and routed their communications through the external chipset. Intel's Yonah is a much better multicore design.

Cache matters, too. Because AMD and Intel derived their first multicore processors from single-core chips, each core has its own L2 cache. Like jealous siblings, they don't share. Yonah takes a step forward by using a shared cache, which is more efficient when one program needs more cache than another does.

There are many more differences among multicore processors, and they always reflect engineering trade-offs—there's no absolute best design. Weighing those trade-offs will require better benchmarks and knowledgeable reviewers.

Tom Halfhill was formerly a senior editor for Byte magazine and is now an analyst for Microprocessor Report.

FUNSIZENEWS

THE FIRST RULE OF DRM IS...

If you live in Finland you better keep your trap shut when it comes to digital-rights management. A recent bill passed by the Finland government cracks down on people who violate copy protection by copying music and movies, going so far as to prohibit "organized discussion" of DRM and ways to bypass it.

APPLE LAYS DOWN THE LAW

Sellers of iPod-related accessories were recently forced to remove the music-device's trademarked name from product names and website URLs. Thus, iPodlounge.com, for example, must now be called iLounge.com. Sellers were also given draconian instructions describing how they can refer to Apple products, including the demand that the iPod always be referred to as an Apple iPod Device.

ONE FINAL SERVICE PACK FOR XP

According to an article at Betanews.com, a Microsoft rep in France recently let slip that the company is planning a third Service Pack for Windows XP. According to the article, the update will be "significant," though it was not revealed what it would include. Because it will most likely come out after Vista is launched, Service Pack 3 could include the long-anticipated WinFX file system for XP.

AMD TOPS INTEL AT RETAIL, FOR ONCE

CPU underdog AMD recently bested its arch-rival Intel for the very first time at retail, outperforming the silicon giant for the entire month of September. Research data shows that AMD captured 52 percent of U.S. retail desktop sales in this period, compared with Intel's 46 percent.

Home Arcade Action– No Quarters Required

If you're feeling nostalgic for the good ol' days of arcade action, Hong Kong manufacturer Big Electronic Games Ltd. is bringing the arcade experience home, complete with a dozen Midway classics. The BigGames Home Video Arcade is 62 inches tall, looks just like a classic stand-up arcade machine, and features Joust, Defender, Robotron, Bubbles, Sinistar, and more. The Home Video Arcade will set you back 2,000 quarters ($500, www.mybiggames.com).

Intel Seeks a Piece of Console Market with "Remote Gaming Plan"

New technology lets you stream PC games to your TV, so you can play them from your couch

Will your next game console be nothing more than a remote control for your PC? That's what Intel is hoping will happen when it introduces a remote gaming platform next year. The fledgling technology promises to extend PC video games to the living room.

Intel's new platform will be a simple console box that connects to your TV and decodes video streams from your desktop PC sent over a wireless LAN. Control pad commands will be relayed back to your PC through a remote USB standard.

All the heavy lifting is done on the desktop PC, which intercepts the video stream after it's been rendered by the graphics driver, and encodes it to MPEG-2 or MPEG-4 format, which is then broadcast to one or more game consoles. Because the console boxes contain nothing more than a few chips to decode the video stream, Intel expects the boxes to cost from $100 to $150. Intel showed off early reference designs this summer but said it hasn't set a time frame for the launch of remote gaming.

EFF Decodes the Secretive Laser Printer Tracking Mechanism

You've surely read the news stories about color laser printers that secretly encode each and every print with a hidden serial number, which would allow The Man to track a print back to its owner. If you wondered exactly what is being encoded, the Electronic Frontier Foundation (EFF) finally has an answer, at least for one type of printer. After examining a mountain of printed documents that contain the virtually invisible yellow dots, the EFF has concluded that the printers encode the date and time the print was made, as well as the serial number of the printer. So far, the EFF has only been able to crack the encoding from Xerox DocuColor printers, but it believes the codes from other printers reveals similar information.

Check out **www.eff.org/privacy/printers** to see if your color laser printer is a narc!

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Behold the centerpiece of MIT's One Laptop Per Child program.

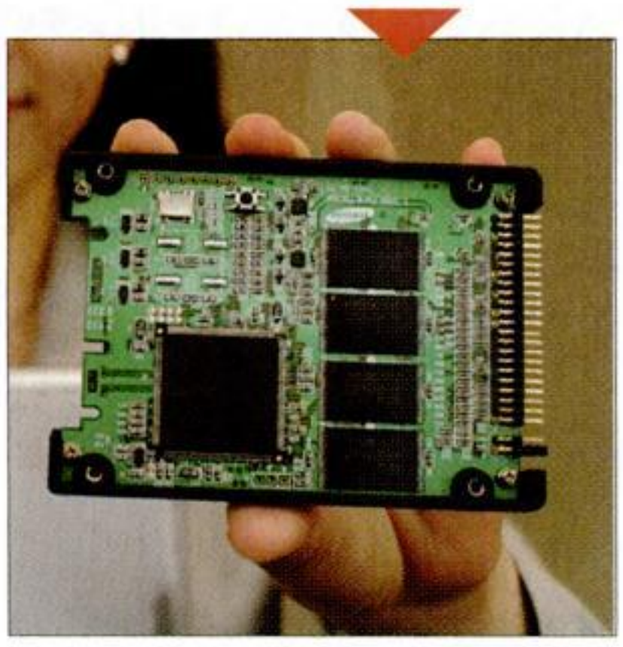
$100 Laptop? We'll Take 10!

The brainiacs at MIT are working on a Linux-based $100 laptop with a 500MHz processor, 1GB of storage, and a 1MP digital camera. Like AMD's PIC project, it's aimed at kids and third-world wannabe netizens. The prototype notebook is rugged, enabled with Wi-Fi and cellphone technology, and creates a mesh network with other nearby machines when turned on.

Intel Aims to Speed Boot Times

New Robson technology uses flash memory to load OS in a jiffy

Intel showed next-gen technology designed to reduce PC boot times at this year's Intel Developers Forum in Tapei. Although the company was tight-lipped about when this tech might appear on the PC, as well as the potential decrease in boot times, the company did divulge that it relies on a NAND flash card that works in tandem with the PC's hard drive to achieve faster booting. It's safe to assume that this technology will appear when Microsoft's Vista OS ships in 2006, because Toshiba has announced plans to introduce a hybrid hard drive that uses NAND memory as well, which will also be compatible with Vista.



Combining hard drives and flash memory, as seen here, could be the key to reducing boot times in the near future.

Google's Secret Services

You use Gmail, Google Talk, and the ubiquitous Google search engine, but that's just scratching the surface of the information giant's offerings these days. We scoured Google's website to get you up to date on some of its more useful—and obscure—services that, like its search engine, are absolutely free.

▸Mobile

http://mobile.google.com
All of the top features of Google on your cellphone. Get search results, images, and local information instantly.

▸Video

http://video.google.com
Following the Google Images model, this service saves you time trying to find, say, that video of Leeroy Jenkins or President Bush flipping the bird.

▸Reader

www.google.com/reader
A web-based Atom- and RSS-feed reader to keep track of your news and blog sites, all with the Google touch.

▸Print

http://print.google.com
Search for keywords and view scans of books.

▸Ride Finder

http://labs.google.com/ridefinder
An extension of Google Maps, this service provides real-time locations for shuttles and taxis. Cities are currently limited, though.

For more Google tools and services, check out: www.google.com/intl/en/options/; and visit Google Labs at http://labs.google.com to see the latest projects of Google's skunkworks.

GAME THEORY

THOMAS **MCDONALD**

Don't Get Mysty

The first words of this column, written almost 10 years ago, were the undeniably childish (albeit accurate) "I hate *Myst*." *Myst* was an anti-game, a desiccated husk of an imaginary world peppered with puzzles that only grew in tedium the further you traveled. Levers and buttons and switches, oh my!

Well, a decade or so later, *Myst* finally comes to an end with *Myst V: End of Ages*, and I needed to see if maturity had done anything to mellow my feelings about this spawn of the brothers Miller. The answer is a definitive "sorta."

Despite the mighty efforts of team Cyan, reams of text, and oceans of dialog (all well-voiced), I still feel no connection to these humorless, mopey, unappealing characters and their problems. *End of Ages* is loaded with the sort of overripe text that defines the series: "What is a stranger? Someone who is not me? Yet sometimes I feel like a stranger to myself."

This is simple sub-Robert Jordan wankery: low-level freshman English comp with pretensions of profundity. As a passing bit of narrative/character backfilling, it would be merely something to dismiss on the way to the next bit of lever/button/switch twiddling. The problem is, the entire game—indeed the entire series—is permeated with this grim portentousness. It's a particular style of fantasy narrative that many readers (and gamers) adore, but which leaves me utterly cold, and it partly explains why this series has never clicked with me.

And yet … there is a real sense of imagination at work here. While the narrative and gameplay sensibilities of the Millers hold little appeal for me, the visual style and grand sense of the fantastic is mightily impressive. *Myst's* worlds—dark and empty as they always are—display a tremendous amount of invention. World-building is no easy matter, and an entire landscape with such wondrous places and clever touches is a tremendous achievement. Cyan always delivers the eye-candy, and a wholly 3D *Myst* world is an amazing place to explore. Too bad I've never felt there was a good reason to explore it.

Tom McDonald has been covering games for countless magazines and newspapers for 11 years. He lives in the New Jersey Pine Barrens.

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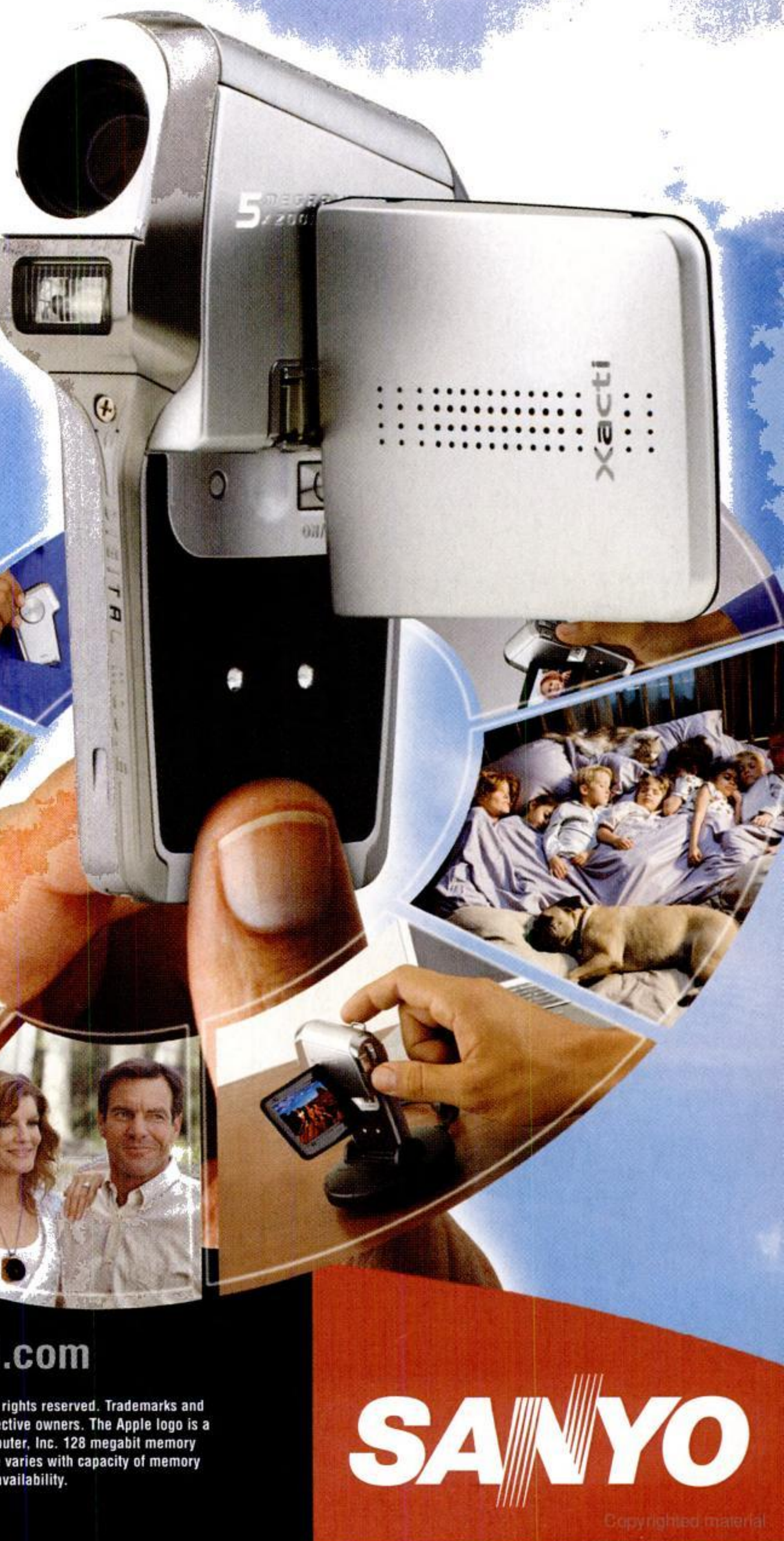

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Hard Drives: Internal vs. External

We get a lot of email from readers who are eager to add more storage to their systems but aren't sure whether to go the internal or external route. Some people don't want to hassle with installing a new internal drive; others bristle at the thought of running an external drive with a relatively pokey USB 2.0 interface. (Sure, there are much-faster FireWire 800 drives on the market, but that interface isn't common on PCs these days.) There's also the issue of cost: Bare drives typically cost a lot less than a drive wedged into an external enclosure, and it's no secret that drive manufacturers make a pretty penny by taking aged drives, dropping them into an enclosure, and then adding $100 to the price tag. As is often the case when it comes to PC component comparisons, finding the type of drive that's best for you largely depends on your particular needs.

BY JOSH **NOREM**

INTERNAL DRIVE:
Maxtor DiamondMax 10 250GB, $95, www.maxtor.com

round 1 PERFORMANCE
This is no contest really, as the naked drive riding the ancient ATA133 interface spanks the USB version like a latex-clad dominatrix. In *HD Tach* we see the bare drive averaging read speeds across its dense platters in the neighborhood of 55MB/s, while the USB drive pokes along at a smidge more than 30MB/s. That's just pathetic, but typical of the USB interface. Although it's theoretically capable of achieving read speeds of 60MB/s, during testing we've found that USB barely scratches the surface of its speed potential. When it comes to CPU utilization, the internal drive also ruled the roost with its scant 2 percent usage, whereas the external drive required 11 percent of our CPU's attention during file transfers. Access times for both drives were exactly the same, but the internal drive registered a 98MB/s burst speed, whereas the external drive rang up a laughable 35MB/s score.
WINNER: INTERNAL DRIVE

round 2 EASE OF USE/INSTALLATION
This is also no contest, but in favor of the external drive. Installation couldn't be easier: Just plop the drive onto your desk and plug in the power and USB cables. There are no drivers to install, no jumpers to set, and no annoying cables to route. With our internal drive, on the other hand, there's the hassle of opening the case, sticking the drive into a drive cage, and making sure the jumpers are set correctly. It's not as much of a pain in the ass as swapping out a mobo, but there is some elbow grease involved. Internal drives also require active cooling, whereas external drives have the advantage of an enclosure that absorbs and dissipates the drive's heat. If you're averse to monkeying inside your case (shame on you!), external is the only way to go.
WINNER: EXTERNAL DRIVE

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round 3 EXTRAS This is another category where the external drive wins by a landslide, simply because internal drives don't come with any extras aside from the requisite ATA cable and screws for mounting the drive in your case. But then again, what more do you need? External drives usually include a snazzy bundle that includes backup software and formatting/partitioning tools. Some external drives can even be locked to prevent evildoers from removing it from the enclosure. And in the case of our favorite backup drive—the WD Media Center—you get a media reader and USB hub, to boot. Do these extra tidbits justify the $70-$100 price delta between the internal and external versions? If the bundle goodies are useful, we certainly think so. **WINNER: EXTERNAL DRIVE**

EXTERNAL DRIVE: Azio External HDD Enclosure, $50, www.aziocorp.com

round 4 VALUE Let's be honest: External drives are damn pricey. A top-of-the-line 300GB internal drive costs $130 bucks these days, but the external version of that exact same drive is more than $200, and offers a lot less performance for that extra cash. Sure, you're paying for the extras and the enclosure, but if value is what you're after, you can save a lot of scratch by opting for a bare drive instead of a bells-and-whistles external unit. Plus, there's always the option of buying a bare drive and then purchasing the whistles (and bells, if you so desire) separately. **WINNER: INTERNAL DRIVE**

And the Winner Is...

Unlike most Head2Head shootouts where two technologies directly compete against each other in the same niche, this comparison pits two products that serve distinctly different needs, even though they're both used for storage. As such, we have no problem declaring the internal drive the winner, but it's clearly not the best solution for *every* possible storage need.

For example, if you need to transport files back and forth from work and home, you'd have to be either insane or a masochist to buy an internal drive. And if you just need a place to stash your "multimedia" collection, then an external drive is a smart choice, especially because they usually come with backup software—it's important to safeguard all those precious videos! *But*, if you're looking to add more storage capacity to your system, and you're planning to run apps and games from it, you'd be *loco* to opt for an external solution.

Of course, it's important to note that external SATA drives (dubbed eSATA) are on the way, and should wipe away the performance differential between external and internal drives. MPC

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Alienware recommends Microsoft® Windows® XP.

PC GAMER EDITORS' CHOICE
November 2005

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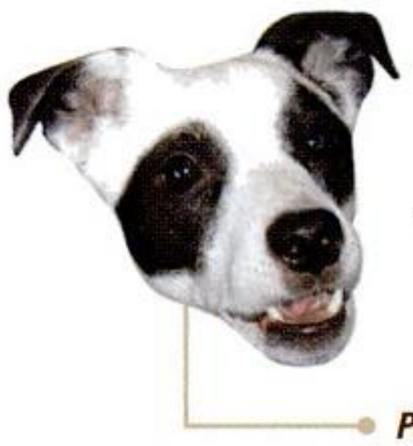


Panda, Watchdog of the month

Our consumer advocate investigates...

✓MSI ✓Portablecomputer.com ✓HP

MSI SETTLES CAPACITOR SUIT, OTHER COMPANIES TARGETED AS WELL

MSI has settled a class-action suit that claimed some of the company's motherboards used faulty capacitors, and that the company concealed the problem from consumers. The suit, filed in May in a Los Angeles superior court, is similar to another suit against mobo maker Abit that was settled earlier this year. The MSI suit claims capacitor supplier Lumious Town Electric used a defective electrolytic formula. These bad capacitors, in turn, were sold and used by numerous motherboard manufacturers, PC makers, and in other electronic devices. The bad caps usually bulge or ooze a pus-like material and cause the PCs they're in to reboot, continuously loop, or die.

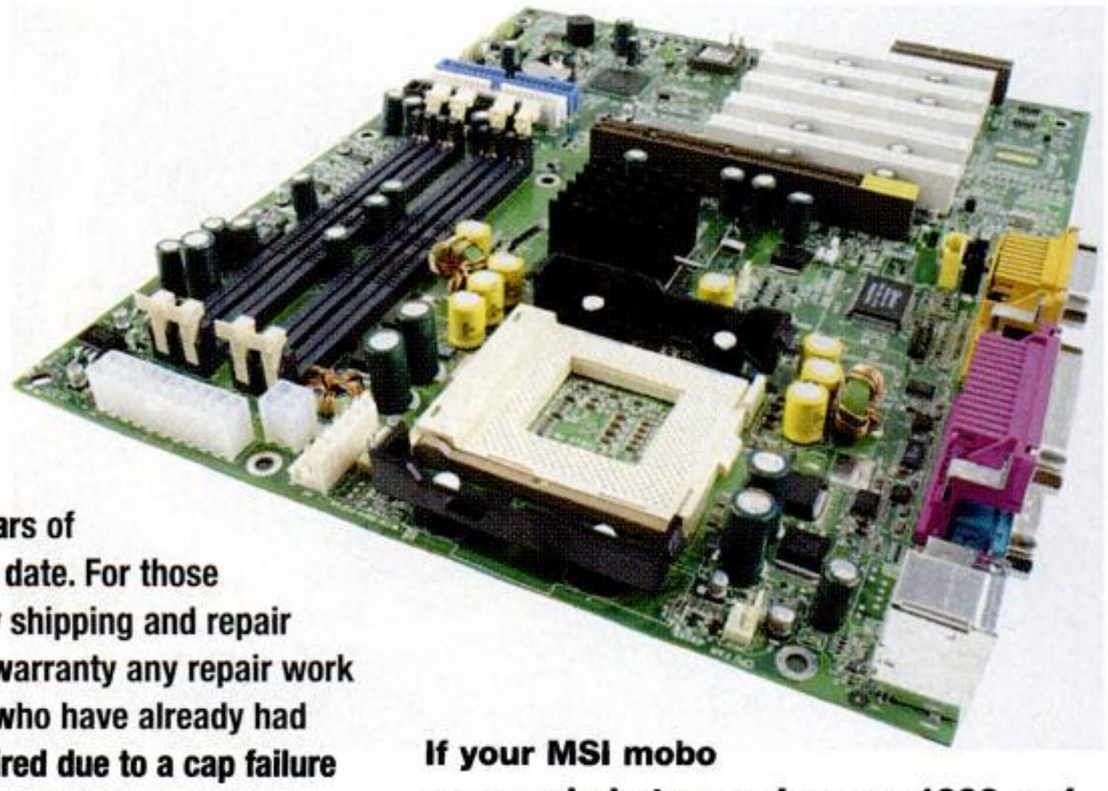
As part of the settlement, MSI has agreed to repair or replace the motherboards of owners who submit valid claims of a capacitor problem. The settlement covers motherboards produced between January 1999 and May 2002. To qualify, consumers must have a motherboard made in the affected period (see boxout at lower-left for details) and have experienced a capacitor failure within four years of the board's manufacture date. For those who qualify, MSI will pay shipping and repair costs for the board and warranty any repair work for 90 days. Consumers who have already had their motherboards repaired due to a cap failure (and have supporting documentation), will be reimbursed up to $100 per motherboard.

MSI officials would not comment on the settlement but did provide a statement from the company's legal department. According to the statement, the boards in question have long been off the shelves and the company is disappointed the suit was filed without being contacted about a resolution first. The company also denies it engaged in false conduct by not telling consumers of a potential problem.

"All the capacitors adapted in MSI motherboards nowadays are of high quality. We believe the consumer may enjoy the usage of MSI motherboards without worrying about the quality of the capacitors," the statement reads.

Just how big of a problem is this? The Dog has heard from enough readers and personally run across the problem enough times to be convinced it's not frivolous—boards and systems are failing with blown capacitors as the root cause. Philadelphia attorney Jonathan Shub, who negotiated the settlement with MSI, told the Dog, "We have no indication as yet how widespread the problem is." Shub said he is also pursuing litigation against Soyo, Jetway, and Hewlett-Packard over the bad caps. He welcomes information from consumers regarding their bad capacitor problems at jshub@sheller.com.

For more information on the settlement, visit www.msisettlement.com.



If your MSI mobo was made between January 1999 and May 2002 and has suffered a capacitor failure, the company will repair it for free.

To check whether your MSI motherboard is part of the settlement, locate the serial number. It will be a series of digits just under the bar code. The first digit is the year of manufacture, the second digit indicates the month. One through nine corresponds with the months January through September. The letter A represents October, B denotes November, and C means the board was made in December. Our example serial number of "3A00376285" means this particular MSI motherboard was manufactured in October of 2003 and therefore does *not* have the allegedly defective capacitors.

Got a bone to pick with a vendor? Been spiked by a fly-by-night operation? Sic The Dog on them by writing **watchdog@maxumumpc.com.** The Dog promises to answer as many letters as possible, but only has four paws to work with.

PORTABLE DISAPPEARING ACT

I shipped my IBM ThinkPad laptop to Portablecomputer.com for repair several months ago. The screen's backlight was not functioning, but the image was still there, and Portable's website suggested this was a common issue that could be resolved quickly (and for a flat fee of $195, plus $20 shipping). I received an email from Wesley Forrester on May 10, saying Portable had received the laptop and authorized the repair on May 17.

As you can probably guess by my writing to you, I have still not yet received my laptop back from him. I have been told the laptop was shipped back (Forrester even provided me with a tracking number that was never used). I have been told that it's fixed and being tested right now and should ship out this afternoon. I have been told that the repair is giving him trouble, that he is waiting for parts... the list goes on.

I tried pulling up the website this morning so I could get the number to call—again—and could not connect to the site. DNS resolution failed, too. I dug through my emails and found the number, but when I call, I just get voicemail. Have I lost this laptop (and my $215)?

— Gerald Leach

Bad news, Gerald, it looks like Portablecomputer.com, aka Media Computer Enterprises, has flown the coop. Portable Computer was one of the places where consumers could get their ancient notebooks serviced. The Dog even mentioned Portable as a place KDS Computer recommended consumers take their notebooks when KDS went

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out of business several years ago.

Consumer dissatisfaction with Portable, and its owner Wesley Forrester didn't happen overnight. The Better Business Bureau rates the company as unsatisfactory due to the number of unanswered complaints. In the last 12 months alone, Portable racked up some 32 complaints to the BBB. At web-store rating site Resellerratings.com, Portable's overall rating has plummeted as well. Although Portable's lifetime rating was a so-so 5.17 out of 10, in the last six months, it's dropped to a dismal 2 out of 10. Numerous complaints sound rather similar to this one: "I was quoted to have an LCD screen repaired on a Micron laptop. After six months of back and forth dialogue, which resulted in a final admittance that they could not repair the unit due to their inability to locate parts, they sent back the laptop. However, I am still waiting almost three weeks later for a refund of $175. They shouldn't be quoting jobs if they don't have the parts in stock to make the repair. They should not take six months to finally admit they cannot fix the problem as promised. And they definitely should not take three-plus weeks to issue a refund."

The Dog tried to contact Wesley Forrester through email, instant messaging, and by trying to track him down using several public-information databases, with no luck. That's a pretty good indictor that Portable is down for the count. Still, there's a slim chance Portable hasn't totally vaporized. When dialed, the company's number is in fact busy, not disconnected, so is it possible Portable is simply suffering a massive connectivity problem that has disabled its website and phone system? It's wishful thinking, but even if Portable comes back, the Dog recommends that consumers steer clear. Woof. MPC

Recall **Alert**

Batteries used in the Compaq nw8000, as well as other models, are being recalled.

Hewlett-Packard is recalling about 135,000 notebook battery packs that might overheat, melt, and pose a burn or fire hazard. About 85,000 of those batteries were sold in the U.S. The company said an internal short can occur in the battery cells, which would cause the meltdown. The company has received 16 reports of overheated batteries, with four them occurring in the U.S. The bad batteries were used in both HP and Compaq notebooks and were made between March 2004 and September 2004. The batteries were sold in HP Pavilion models: dx4000, dx5000, zd8100, ze4100, ze4100/xt1xx, 4200, ze4200, ze4300, ze4400, ze4500, ze4600, ze4700, ze4800, ze5155, ze5200, ze5300, ze5400, ze5500, ze5600, zv5000, zv5200, zx5000, zx5200; HP Compaq models: nc6000, nc8000, nw8000, nx5000, nx6130, nx9005, nx9008, nx9010, nx9100, nx9105, 9000, 9005; Compaq Presario models: 1100, 2100, 2500, R3000, R3200, X1000, X4000, X5000, X6100; and Compaq Evo models: n1010v, n1050v. To check your battery, remove it from the notebook and look for a bar code. Just beneath it you should find a series of numbers which constitute a production code. If the production code begins with GC, IA, L0, or L1, the battery is part of the recall. The company says consumers should stop using the recalled batteries and immediately contact HP for a free replacement cell. Visit www.hp.com/support/batteryreplacement or call 888-404-7398 between 7 a.m. and 7 p.m. central time, Monday through Friday, for more information.

demonic possession

de•mon•ic (dē-mŏn′ĭk)
adj. pos•ses•sion (pə-zĕsh′ən)

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A *mania* RESTRICTED TO ONE THING OR IDEA AT THE EXCLUSION OF ALL ELSE

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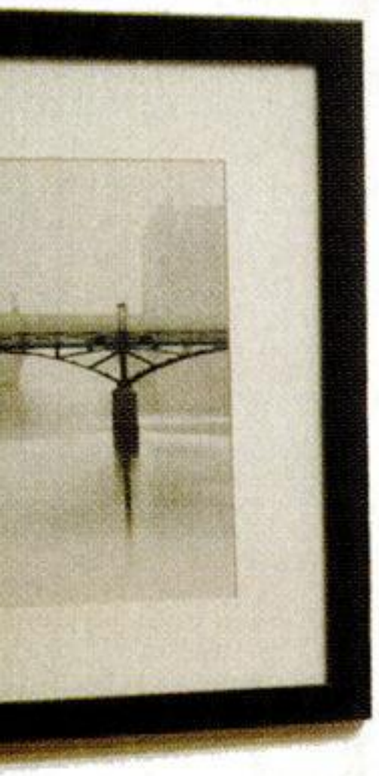

MAXIMUM PC's

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YEAR_

BY THE MAXIMUM PC STAFF

The *Maximum PC* editorial staff meets once a year in a high-security, windowless room at a remote, undisclosed location to cast their votes for the recipients of the prestigious Maximum PC Gear award—which is reserved for the year's best PC hardware. The gathering quickly and inevitably descends into a raucous shouting match, punctuated by personal attacks, and even hair-pulling. Debate rages for hours and days, until eventually each nominee is either accepted or rejected. It's grueling, but no one leaves until the job is done.

The pain and suffering are worth it. Every year, we tip our hats to the kind of hardware that makes us feel good about being geeks, and we have the opportunity to acknowledge those manufacturers who went above and beyond the call of geekery to create the works you'll see in these rooms.

Thank you for attending. Nachos will be served at 11:00 p.m. The Gear presentations will commence now.

STORAGE GALLERY..... *ATRIUM, Pg. 26*
AUDIO GALLERY..... *EAST WING, Pg. 27*
CHIP GALLERY..... *WEST WING, Pg. 28*
VIDEO GALLERY..... *MEZZANINE, Pg. 30*
PERIPHERAL GALLERY..... *NORTH WING, Pg. 31*
FORMFACTOR GALLERY... *SOUTH WING, Pg. 32*

GEAR of the YEAR

ATRIUM: STORAGE GALLERY

The components in the storage wing are sometimes under appreciated—looked over, if you will—but this year's winners delivered revolution without reservation

Optical Drive

Plextor PX-716A

With double-digit access times and double-layer disc overspeeding, the PX-716A proves to be the Master of Spin

Year after year, Plextor raises the bar on performance: The PX-716A remains the only DVD burner we've tested capable of turning in double-digit access times (while the competition slouches in the 100- and even 200ms range). And though Plextor's drives have long been able to write to media at higher than rated speeds, Plextor outdid itself by pulling off 6x write speeds to 2.4x double-layer media! Gear of the year, indeed.

$140, www.plextor.com

Received a 10/Kick Ass in the April 2005 issue

Hard Drive

WD Caviar SE16 400

Not only did Western Digital's latest Caviar spank all the other contenders, it's the official hard drive of Johnny Cash

Though Hitachi's 500GB 7K500 is the current capacity king and is smokin' fast, we're giving this year's hard drive Gear to Western Digital's smaller-faster-quieter Caviar SE16 400GB drive. The reason is simple: It's the fastest 7,200rpm drive we've ever tested, and during testing it spanked the mighty 7K500 Deskstar in all but one of our benchmarks. The Caviar ran even cooler and quieter than the monstrous Hitachi drive in head-to-head testing.

$235, www.wdc.com

Received a 9/Kick Ass in the Holiday 2005 issue

External Storage

Western Digital 320GB Media Center

By integrating unlooked-for-but-needed functionality, this backup drive backed up our hearts

The WD Media Center is still the only back-up device in captivity that antes up with a high-capacity, top-of-the-line 7,200rpm hard drive and then raises the stakes by integrating an 8-in-1 media reader and a USB hub into its smooth, plastic shell. These small yet wildly useful additions make it so much more than just a backup drive—it's also a must-have desktop hub, as corny as that sounds.

$270, www.wdc.com

Not previously reviewed

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EAST WING: AUDIO GALLERY

Visitors to the Audio Gallery are encouraged to enjoy the bowel-loosening effect of Maximum PC's world-famous Bass Chamber

Speakers

M-Audio Studiophile LX4 System

Loud and proud is no longer enough. We want our audio to be refined as well

Plenty of speakers pump boomin' bass and cracklin' highs these days; what sets M-Audio's Studiophile LX4 System apart is its capacity for delivering it accurately. This economical 5.1-channel studio-monitor system bathed our ears in succulent sound from games, MP3s, DVD-Audio, and everything else we fed it. The fact that we can also use it to produce anything from stereo mash-ups to surround-sound tracks for our own movies is just icing on the cake.

$550 (combined price for both components), www.m-audio.com

Received a 9/Kick Ass in this issue

Soundcard

Creative Labs Sound Blaster X-Fi XtremeMusic

Now hear this: the best damned PC audio—ever!

The Sound Blaster X-Fi is easily the most awesome soundcard we've ever heard. Using a new DSP core that Creative tells us is 24-times more powerful than that of the Audigy 2 ZS, the X-Fi adds a new dimension to 3D audio in video games, with positional sound that's actually *useful*. When a tank rumbles behind a building, that's exactly what you'll hear, instead of the vague, weak buzzing noises you get with most onboard audio DSPs.

$130, www.creativelabs.com

Received a 9/Kick Ass in the November 2005 issue

Media Player

iPod Nano

Four gigs. One and a half ounces. Volume measured on the Richter scale. You know you want it

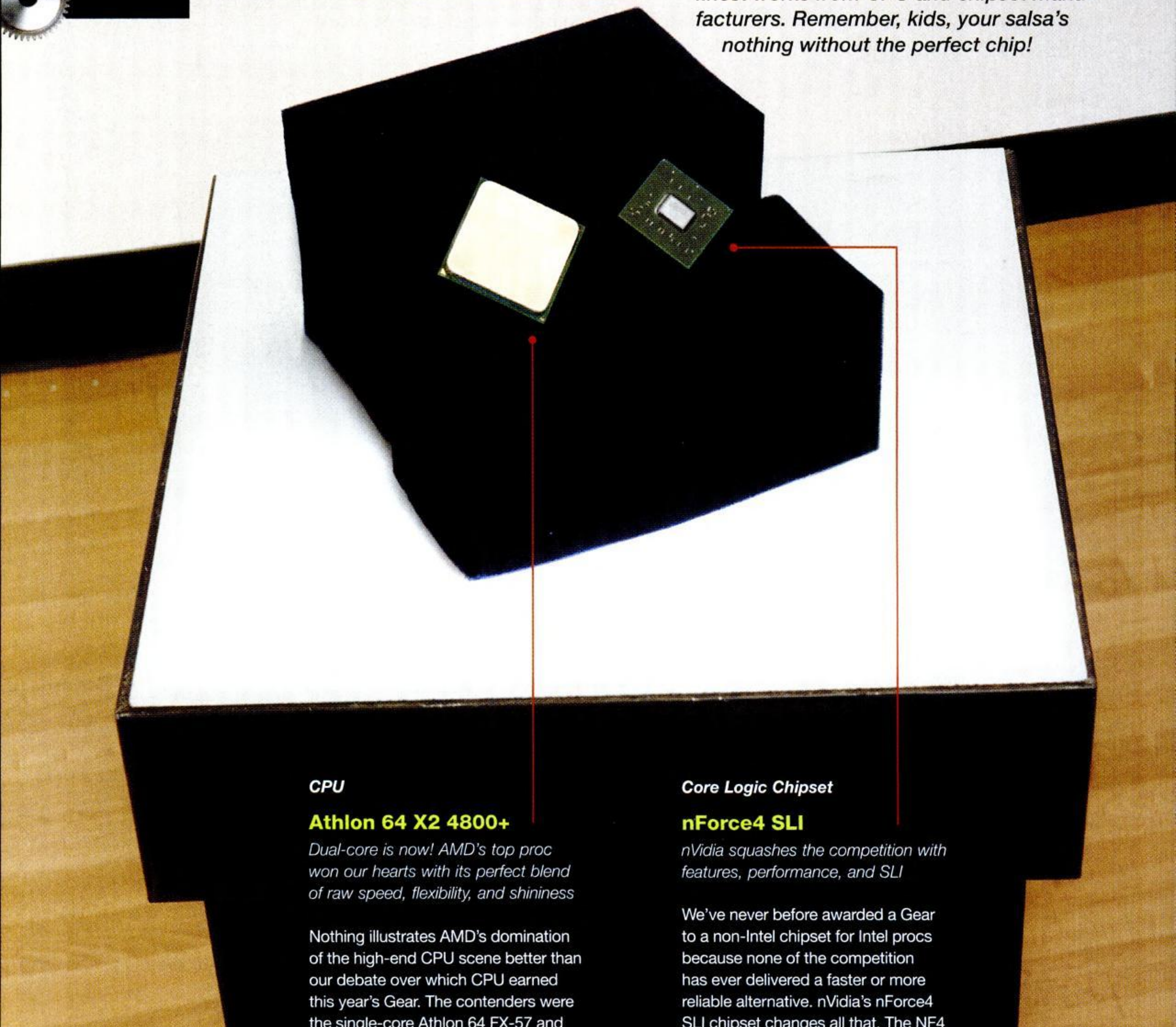
It's well established that Apple makes pretty things. Just look at the reveals on this iPod! It's audacious, sporting an unprecedented 4GB of creamy flash memory. It's sophisticated, integrating all the features of the hard drive-based iPods and throwing in support for the Apple Lossless codec and syncing of your *Outlook* calendar and contacts. It's a sleek siren of a digital audio player, with dazzling sound. And—oh yeah—it's really, really pretty.

$200, www.ipod.com

2GB version received a 9 verdict in this issue

WEST WING: CHIP GALLERY

In the Chip Gallery, we proudly present the finest works from CPU and chipset manufacturers. Remember, kids, your salsa's nothing without the perfect chip!



CPU

Athlon 64 X2 4800+

Dual-core is now! AMD's top proc won our hearts with its perfect blend of raw speed, flexibility, and shininess

Nothing illustrates AMD's domination of the high-end CPU scene better than our debate over which CPU earned this year's Gear. The contenders were the single-core Athlon 64 FX-57 and the dual-core Athlon 64 X2 4800+, with nary a Pentium in sight. In the end, the "smooth" dual-core performance of the X2, its outstanding gaming characteristics, and its excellent application chops bagged the Gear. Fire up a multi-threaded app, such as *Nero Recode,* and stand back, baby!

$905, www.amd.com

The CPU did not receive a formal verdict but was reviewed in August 2005

Core Logic Chipset

nForce4 SLI

nVidia squashes the competition with features, performance, and SLI

We've never before awarded a Gear to a non-Intel chipset for Intel procs because none of the competition has ever delivered a faster or more reliable alternative. nVidia's nForce4 SLI chipset changes all that. The NF4 offers performance parity with Intel's finest while packing a hardware firewall and nVidia's SLI technology (in fact, it's the only chipset to support dual-videocards). In AMD land, there's just no competition for the nVidia offering.

www.nvidia.com

The chipset did not receive a formal verdict but was reviewed in October 2005

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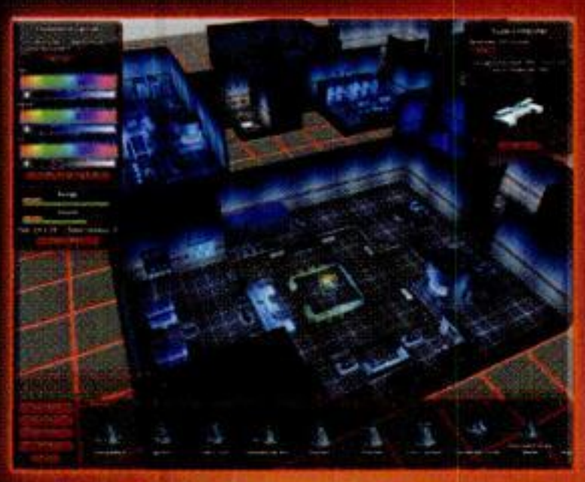

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GEAR of the YEAR

MEZZANINE: VIDEO GALLERY

Visitors to the popular Video Gallery may register to attend, free of charge, Dr. Hilfen von Fenestre's brunch lecture on "l33t sp3ak"

LCD Monitor

Dell UltraSharp 2405FPW

We're not sure which makes us more giddy, this LCD's big bad-assness or its bargain price

At 24-inches, this is one of the largest LCD screens you can get with the specs to satisfy a power user. The 2405FPW's generous expanse and 1920x1200 native resolution provide the screen real estate of two standard desktop monitors, and handles all you throw at it—including fast-motion games—with glorious aplomb. To boot, this baby boasts tasty extras like a built-in 9-in-1 media reader and four USB 2.0 ports, and is usually discounted on Dell's website for less than a grand!

$1,200, www.dell.com

Received a 9/Kick Ass in the September 2005 issue

Videocard

EVGA e-GeForce 7800 GTX KO

This is the fastest card we've ever put in a single PCI Express slot

nVidia deserves credit for designing the GeForce 7800 GTX—the most potent consumer GPU ever—but we have to hand it to eVGA for building an incredible videocard around that muscular engine. As elegant as it is powerful, the hyper-clocked KO—with a 490MHz GPU and 650MHz memory—delivered the best videocard benchmark performance we've ever seen, thanks in part to a stylish and ultra-effective cooling solution, without which a Chernobyl-type meltdown would be inevitable.

$600, www.evga.com

Not previously reviewed

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NORTH WING: PERIPHERAL GALLERY

Visitors frequently return to the Peripheral Gallery, where everything from exotic laser mice to Baroque cooling configurations can be found on display

Wildcard

Sonos Digital Music System

Innovation usually warms our cockles, which explains why this streaming-audio system left us with hot-flashes

Our lives changed the instant we took the Sonos Digital Music System's decadent remote control in hand. As we queued up our first track with its iPod-style scroll wheel, gazed slack-jawed at the album-cover art displayed on its luscious 3.5-inch color LCD, pressed Play and heard the mellifluous tones emanating from speakers in two separate rooms, it dawned on us that no run-of-the-mill streaming box could ever take us to the same unearthly heights.

$1,200 for two ZonePlayers plus one Sonos Controller, www.sonos.com

Received a 9/Kick Ass in the April 2005 issue

Gaming Mouse

Logitech G5

Our Best Mouse pick is so buff, it lifts weights!

One adjustable, 2000dpi, laser-powered sensor. Two different size weights. Three different sensitivity settings. Four perfectly placed buttons. One un-freakin'-believable mouse. The G5 isn't the best mouse we tested this year. It's the best mouse we've tested *ever*. Sometimes gamers need lightning-quick reflexes. Sometimes they need pixel-perfect precision. With its on-the-fly sensitivity adjustments, the G5 can be every mouse for everyone. Its adjustable weight system even lets you tweak the heft of the rodent, go weightless for an effortless glide, or load up all eight slots for a wrist workout.

$60, www.logitech.com

Received a 9/KickAss in the Holiday 2005 issue

Cooling

Zalman Resorator 1 Plus

An editor at a lesser mag told us it was "too hardcore." That's why we love it

By definition, water-cooling is a supremely hardcore technology that few have the *cojones* to dabble in, and that's doubly true of fanless water-cooling. That's why we love the completely fanless Resorator 1 Plus—it's not only audaciously hardcore, but it's drop-dead sexy and able to cool both an FX-55 CPU and a pair of GeForce 7800 GTX GPUs in total silence. Its 2.5L reservoir doubles as a cooling tower. That is the very definition of Kick Ass.

$230, www.zalmanusa.com

Received a 9/Kick Ass in the Holiday 2005 issue

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GEAR of the YEAR

SOUTH WING: FORMFACTOR GALLERY

The floor-to-ceiling windows of the South Wing provide ideal light by which to appreciate the architectural majesty of today's PC formfactors

Case

Cooler Master CM Stacker 830

This case is big enough to accommodate the rowdiest, 1970s-style hardware orgy we've ever seen

The all-new Stacker 830 has so many bays, expansion ports, fan mounts, and doohickeys that it's actually arousing. Not only can you install *nine* 12cm fans, but there are 10 5.25-inch bays, a removable mobo tray with a built-in handle, and support for every motherboard formfactor available—including BTX. The interior is highly customizable, you can completely remove the four-fan holder and configure the front door to open from the left or right, and everything is tool-less. Definitely Gear-worthy.

$250, www.coolermaster.com

Not previously reviewed

Notebook

Dell Inspiron XPS

After much debate, we gave this year's laptop Gear to the first gaming rig that won't parboil our privates

Boutique vendors, watch out! With its Inspiron XPS notebook, Dell's been kicking ass and taking the serial numbers of all comers. Heck, the first-gen XPS was faster than some desktops. The Gen 2 XPS continues that proud tradition and smartens the rig a touch. While other performance notebooks use Pentium 4s that run so hot you've got to stuff potholders in your pants to prevent "nad burn," the XPS uses a cool and fast Pentium M. Even though the XPS looks bulky, it's very portable for the power it packs.

$3,420, www.dell.com

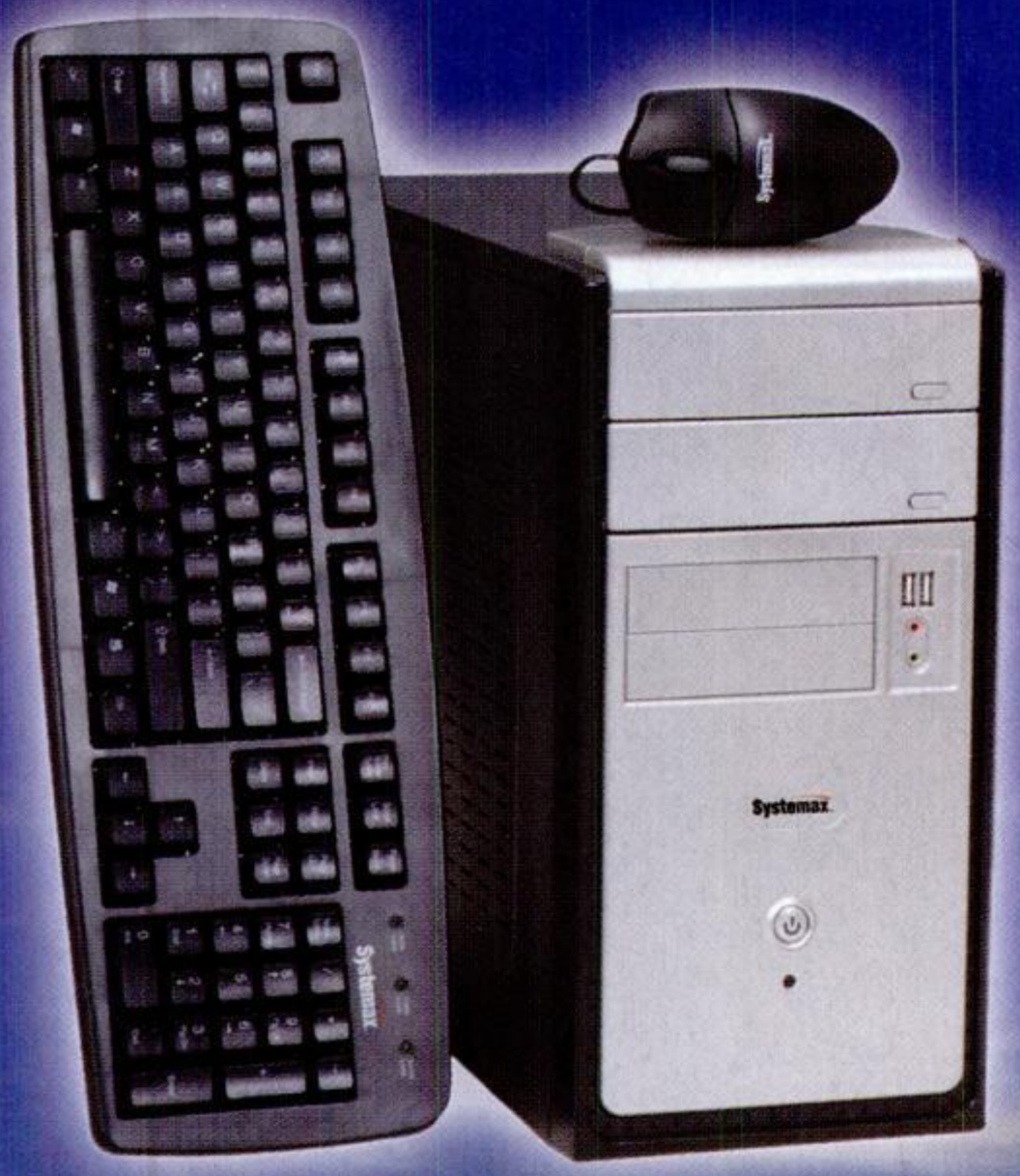
Received a 9 verdict in the July 2005 issue

Systemax™

Systemax recommends
Microsoft® Windows® XP Professional

Do More With More.

Get more, do more, and enjoy more with a Systemax Venture HU² PC featuring the Intel® Pentium® D Processor, thanks to new dual-core processing. Two full processing cores mean an extra powerful gear when you need it so you can accomplish more while running multiple demanding programs, such as editing video while downloading music.



Venture HU²

- Intel® Pentium® D Processor 820 with Dual Core Technology 2.8GHz, 800MHz FSB, 2 x 1MB Cache
- Microsoft® Windows® XP Professional x64
- Intel D945P Motherboard
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- 80GB SATA 7200RPM Hard Drive
- 52X/32X/52X CD-RW Drive
- 6 USB 2.0 (2 Front)
- ATI X300SE Pro 128MB PCI Express
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BASEMENT: PEER REJECTED

A selection of this year's technological blunders highlights, by contrast, the exhilarating greatness of our Gear Of The Year collection

Apple Mighty Mouse

While we give props to Apple for finally releasing a two-button mouse, we have to wonder if the folks who designed this monstrosity ever actually used an input device. To successfully click, you must hover your fingers over the buttons, and push down on the entire mouse. Bah.

$50, www.apple.com

Received a 3 verdict in the Holiday 2005 issue

Philips Shogbox

A horrible screech emanating from the speakers made us think we'd forgotten to set the Shogbox MP3-playing alarm clock to wake us with our own music instead of an electronic buzz. Then we realized, *it was our music.*

$130, www.philips.com

Received a 3 verdict in the Holiday 2005 issue

Parkervision WR1500

The box promised one mile of range from this 802.11b router, which might be possible if you were someplace flat, with little radio interference—like central Kansas. Unfortunately, the WR1500 provided only 802.11g-level range, and at pitifully slow 11Mb/s.

$200, www.parkervision.com

Received a 3 verdict in the January 2005 issue

Thermaltake Schooner

This fanless VGA cooler ran so hot that games would either crash or run at just 5fps as the videocard throttled down to save itself. It was also messy and hard to install.

$40, www.thermaltake.com

Received a 3 verdict in the October 2005 issue

Sapphire Toxic Radeon X700 Pro

Sapphire slapped a slot-devouring cooler—three slots, count 'em, three!—on this card just so the clock on the scrawny eight-pipe X700 Pro could be cranked to 472MHz and its puny 128MB frame buffer to 525MHz. Videocard designs don't get much dumber.

$200, www.sapphiretech.com

Received a 4 verdict in the April 2005 issue

Gizmondo

About the best thing we can say about this buggy, slow, handheld gaming system is, if you consent to wirelessly receive up to three ads a day that appear when you launch games, you'll feel ripped off for only $300 instead of $400. Happy Holidays!

$400 ($300 with ad service), www.gizmondo.com

Received a 3 verdict in the September 2005 issue

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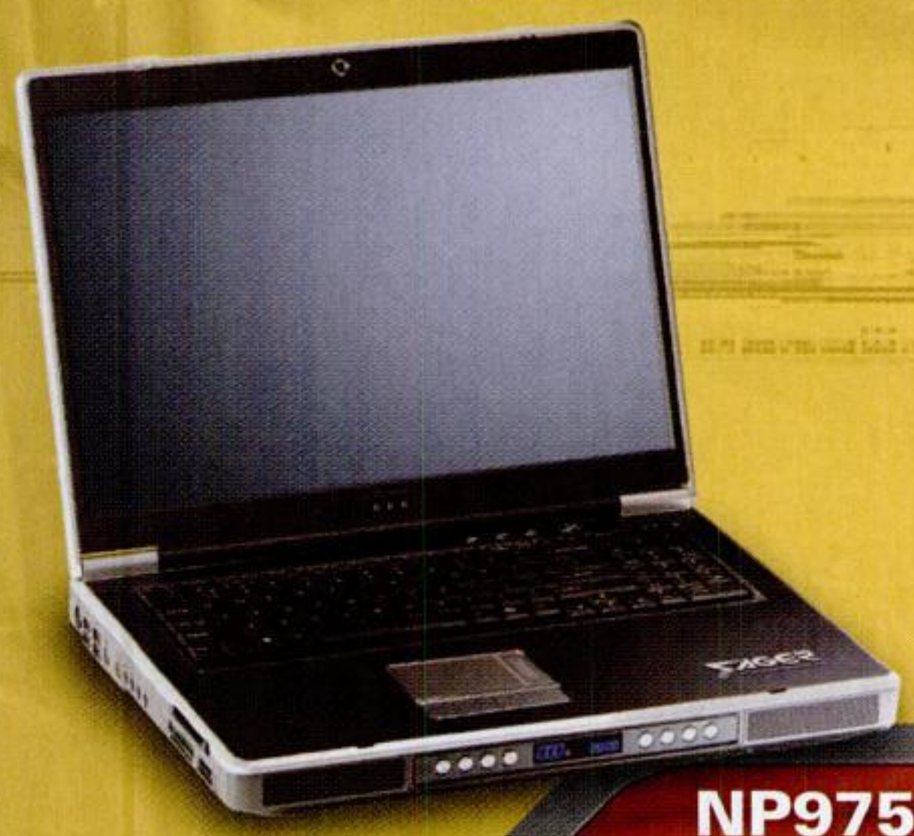
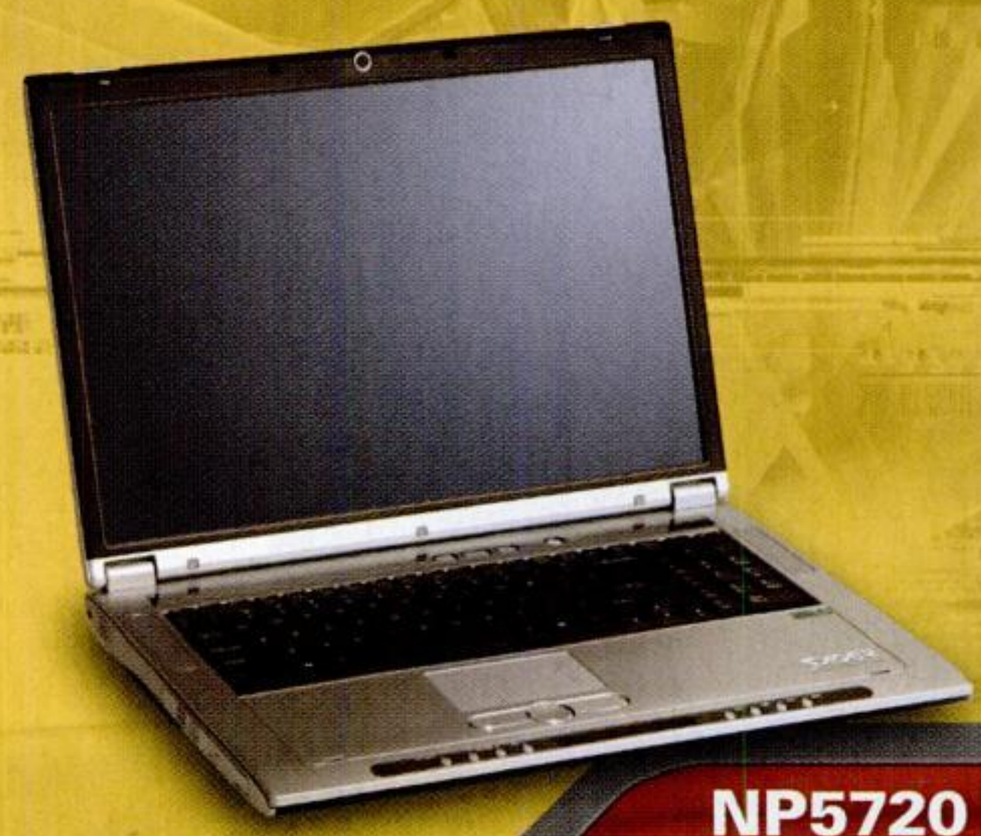
Take your game to the next level. Sager notebooks offer unrivaled gaming performance. Loaded with the latest components, our notebooks let you access today's business and gaming software with ease. Call Sager today to order your custom gaming computer.



NP9750



NP5720

NP9750V $2899

FEATURES

- Empowerment! The AMD Athlon™ 64 X2 Dual-Core Processor enables you to do more in less time by delivering exceptional multi-tasking capabilities and increased performance on digital media.
- nVIDIA® GeForce™ Go 7800 GTX PCI-Express™ Graphics Module with 256MB DDR3 Memory delivering the unparalleled horsepower and revolutionary technologies you need to tear through the latest games.
- Dual Optical Device bays and Dual Hard Disk Capability allow this system to be customized with 2 CD-ROM devices and 2 Hard Drives coexisting for maximum storage capacity.
- Hardware RAID boosts HDD Speed with RAID 0 or mirror backup your data with RAID 1.

OPTIONS

- 802.11g Wireless Module
- 802.11g and Bluetooth Combo Module
- TV Tuner with Remote

- 17.0" Wide Viewing Angles WUXGA Active Matrix Display with Super Clear Glare Type Screen
- AMD Athlon™ 64 X2 Dual-Core Processor 4200+
- 256MB DDR3 nVIDIA® GeForce™ Go 7800 GTX PCI-Express™ Graphics
- 1024MB DDR SDRAM at 400MHz
- 80.0GB 5400RPM Serial ATA 150 Hard Drive
- 8X² DVD±R/RW Dual Layer Drive with LightScribe Technology
- Full Size Keyboard with Numeric Keypad
- Hardware Raid 0,1 Function
- Dual Optical Device bays and Dual Hard Disk capability allow this system to be customized with 2 CD-ROM devices and 2 Hard Drives coexisting
- Integrated Wireless LAN 802.11 b/g
- Built-In Digital Video Camera
- Built-In 7-in-1 Card Reader
- Microsoft® Windows® XP Home Edition
- Sager's Umbrella Protection Policy

NP5720V $2199

FEATURES

- nVIDIA® GeForce™ Go 7800 GTX PCI-Express™ Graphics Module with 256MB DDR3 Memory delivers best-in-class performance and brilliant video for gaming and multimedia business applications.
- Dual Channel DDR2 System Memory supports 400/533MHz, providing the best match for new Intel® Pentium® M Processor.
- Modular Bay Design allows for maximum customization capability.
- Integrated 4-in-1 Card Reader supports SD/MMC/MS/MS Pro provides fastest and easiest way to transfer your digital media.

OPTIONS

- Bluetooth Module
- TV Tuner with Remote
- Port Replicator

- 17.0" Wide Viewing Angles WSXGA+ Active Matrix Display with Super Clear Glare Type Screen
- Intel® Centrino™ mobile technology
  - Intel® Pentium® M Processor 760 (2MB L2 Cache, 2.0GHz, 533MHz FSB)
  - Intel® PRO/Wireless 2915ABG LAN 802.11 a/b/g
- 256MB DDR3 NVIDIA® GeForce™ Go 7800 GTX PCI-Express™ Graphics
- 1024MB Dual Channel DDR2 SDRAM at 533MHz
- 80.0GB 5400RPM Serial ATA 150 Hard Drive
- 8X DVD±R/RW Dual Layer Drive with LightScribe Technology
- Modular Optical Device Bay design allow CD-ROM Device to be exchanged with optional 2nd Hard Drive
- Front Panel Audio DJ with Separate Power Switch
- Built-In Digital Video Camera
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AMD 64 Athlon™ X2

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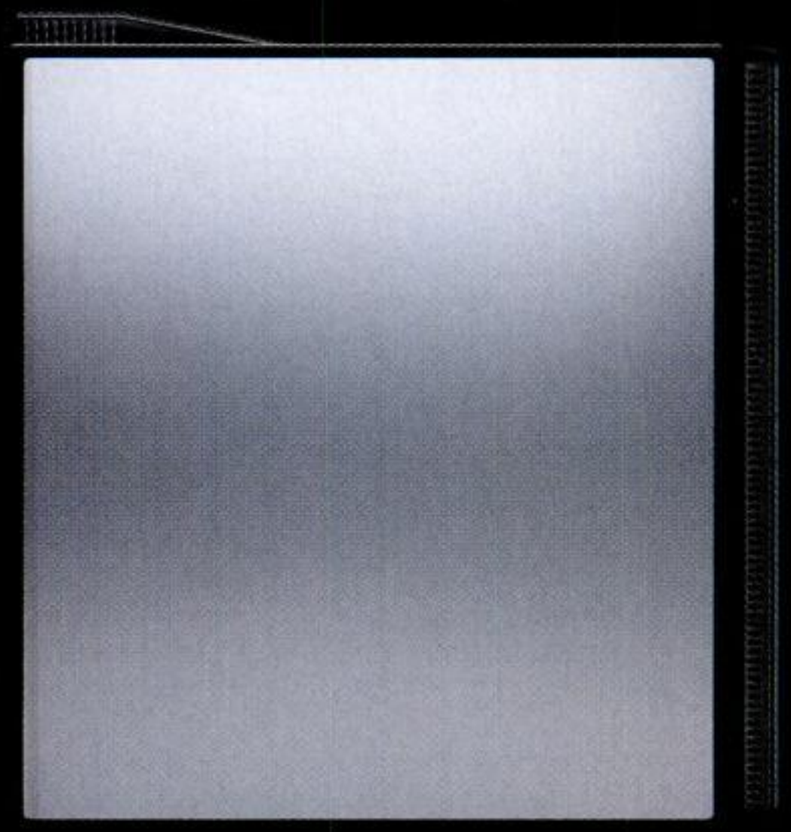

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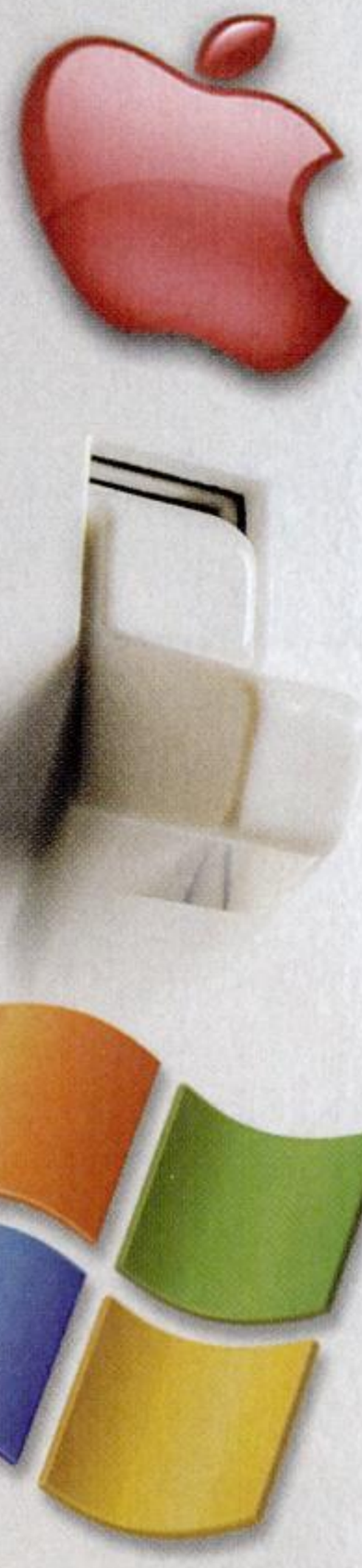
MAKING THE Mac SWITCH

OR: HOW I LEARNED TO STOP WORRYING AND LOVE OS X

BY WILL SMITH



The story thus far: In mid-2004, I decided to expand my operating-system horizons, so I built a Debian Linux machine to replace my trusty Windows-powered workhorse. Six months, a lot of sweat, and a few tears later, I described the experience in *Maximum PC* ("Making the Linux Switch," February 2005). While there were some hurdles, the experience was quite positive overall; I was able to do everything I needed to for work—and even play a few games—using the Linux box.

Over the next couple of months I received a lot of email about the story. People wanted to know what I thought about other Linux distros, if I really was able to do everything, and if I'd do it again. But the question I received most wasn't about Linux at all, it was about Apple's OS X. There was only one way to answer that question, by diving feet-first into a nine-month exploration of Apple's latest operating system.

In the Beginning...

TRANSITIONING FROM LINUX TO OS X WAS SURPRISINGLY EASY. THE HARD PART, IT TURNS OUT, WAS GETTING THE KEYBOARD SHORTCUTS RIGHT

THE VERY FIRST BOOT

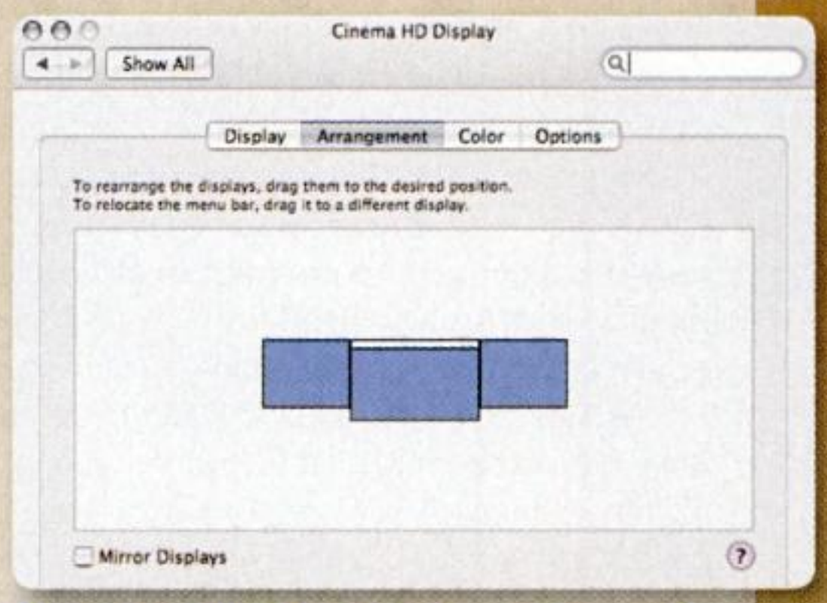
I have to say, I'm impressed with the initial user experience. OS X walks you through a quick, post-install wizard that configures your basic applications, configures a user account, and connects you to the Internet. Cleverly, the installation and the system-configuration portions of the install are separate, so you can actually make an image of a totally installed OS X partition.

The weirdest thing to me is looking for menus at the top of the main screen rather than in the actual window. I guess this makes sense—after all, menus are specific to the application, rather than to an individual application window, but it sucks when you're using a multiple-monitor setup. With three displays, I've got to traverse a lot of screen to reach the basic menu functions when I'm working on a secondary display. This is not good.

This has nothing to do with the operating system, but I have to admit that I'm impressed with the Apple hardware design, at least from a cable-management standpoint. Instead of the usual five cables running between my computer and my desk (monitor, monitor power, keyboard, mouse, and speakers), I have just two, speakers and monitor. My keyboard and mouse are both connected to the powered hub built into the display. There's no reason a PC display couldn't work this way, with the display signal, power, USB, and FireWire carried over one cable that terminates with separate standard connectors.

MULTI-MONITOR SUPPORT

While getting multi-monitor support working properly on my Linux box took tons of config-file editing, driver recompiling, and the sacrifice of a small chicken, getting dual monitors working in OS X was as easy as plugging in the second monitor. I added a third display with only slightly more hassle. I had to shut down the PC, install a second videocard in one of the (distressingly few) PCI slots, and reboot the machine. When the OS came up, I opened the Displays panel in the System Preferences app, arranged the monitors as they are on my desk, and dragged the title-bar panel to my main display. It was really that easy. I didn't even have to install a driver!



Getting multiple monitors working was a piece of cake. The hard part was figuring out how to designate one display as primary. (Hint: You drag the tiny white bar you see on this screen to the desired monitor.)

THE MOUSE AND KEYBOARD

The display might be great, but the mouse and keyboard are abysmal. The keyboard's flat design made my wrists bleed after a mere 30 minutes, and the mouse is just plain stupid. It's bad enough that it has only one button; it's worse that to click that button you need to press down on the entire mouse. So I reverted to my trusty Natural Keyboard Pro and MX510 combo.

Of course, changing to a Windows keyboard messes up my keyboard shortcuts. The Command key, which is the OS X equivalent of the Control key, isn't where my fingers expect it to be. Luckily, that's an easy fix with *uControl* (**www.gnufoo.org**), which allows you to remap any of your keys to any other function. (The Tiger update to OS X actually includes this functionality out of the box.)

INSTALLING AND MAINTAINING APPLICATIONS

I'm really shocked at how easy it is to install applications on OS X. Sure, months spent using a Linux box taught me to not take such a basic task for granted, but in OS X, application management makes sense in a big way. There are two types of files that most applications need to run: the stuff that should never change—think executables, art assets, and dll files on the PC—and stuff such as settings information, which is user specific. All of the files that never change are stored in a special container file, which is kind of like a zip file without the compression, and all the user-specific stuff is stored in a subfolder of the user's Home folder. To install an application, you drag the container file to the Applications folder, that's it. OS X prompts you for an administrator password—note that you have to have admin privileges to install applications—and it copies the app to the proper place.

Keeping installed applications organized is as easy as copying or removing files from a folder. Just drag and drop!

Day-to-Day Operations

GETTING THE MAC RUNNING WAS (UNSURPRISINGLY) MUCH EASIER THAN SETTING UP MY LINUX BOX. BUT HAVING LOTS OF APPLICATIONS TO CHOOSE FROM MADE THINGS MORE DIFFICULT

ICHAT VS. THE WORLD

One of the first things I do on a new rig is install an IM client or two. *iChat*, Apple's built-in IM client, features support for AOL Instant Messenger, the open-source Jabber protocol, and Apple's own special server-less local IM, Bonjour—formerly known as Rendezvous. Bonjour chat uses Universal PNP network discovery to connect to all available clients on your local LAN. It's basically IM that connects you to others at your physical location, rather than your friends.

As a longtime *Trillian* and *Gaim* user, the one thing I immediately noticed about *iChat* is that instead of just listing usernames in line after line of conversation windows, *iChat* uses the graphical buddy icon, and places your text on one side of the screen, and your buddy's on the other. I find that the separation makes it much easier to follow long, detailed conversations.

For the rest of my IM accounts (Yahoo, MSN, and ICQ) I use *AdiumX* (**www.adiumx.com**). *Adium* uses the same libraries as *Gaim*, and works reasonably well, but its windows lack a lot of the visual panache of *iChat*. That said, it's just as tightly integrated with the OS, pulling your IM contacts from the *Address Book* app.

Apple's *iChat* presents even the weightiest IM conversations in an easy-to-follow graphical format.

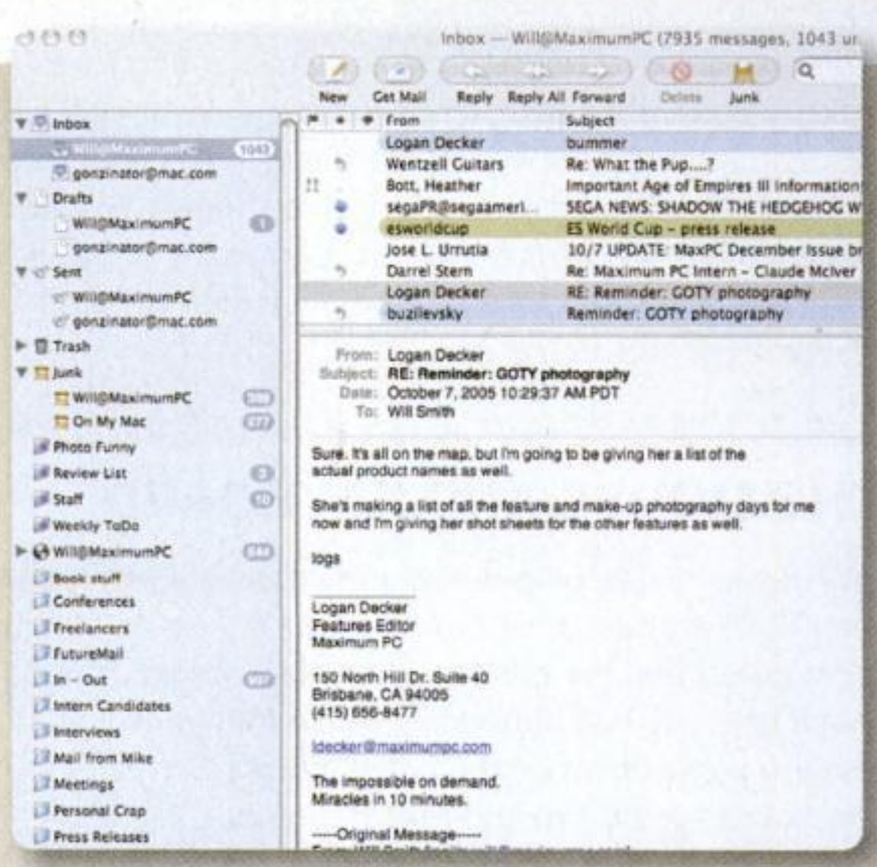
ENTOURAGE VS. MAIL

As a recovering *Outlook* user, I really enjoyed time I spent on Linux, using *Thunderbird* for email and keeping my calendar on an old-school piece of paper. I missed syncing my day-to-day activities to my cellphone and PDA, but I gained access to an application with much better spam filtering and more usable rules.

On my move to the Mac, I was presented with a tough choice: stick with *Thunderbird*, move to Apple's built-in *Mail* application, or admit defeat and crawl back to Microsoft's Outlook-for-OS-X app, *Entourage*. After I imported all my old mail from the Linux box into *Thunderbird* I was ready to experiment. I fired up *Entourage* to see how it differed from *Outlook*. After a few hours spent trying to cope with the scary-slow interface, I ditched *Entourage* for *iMail*.

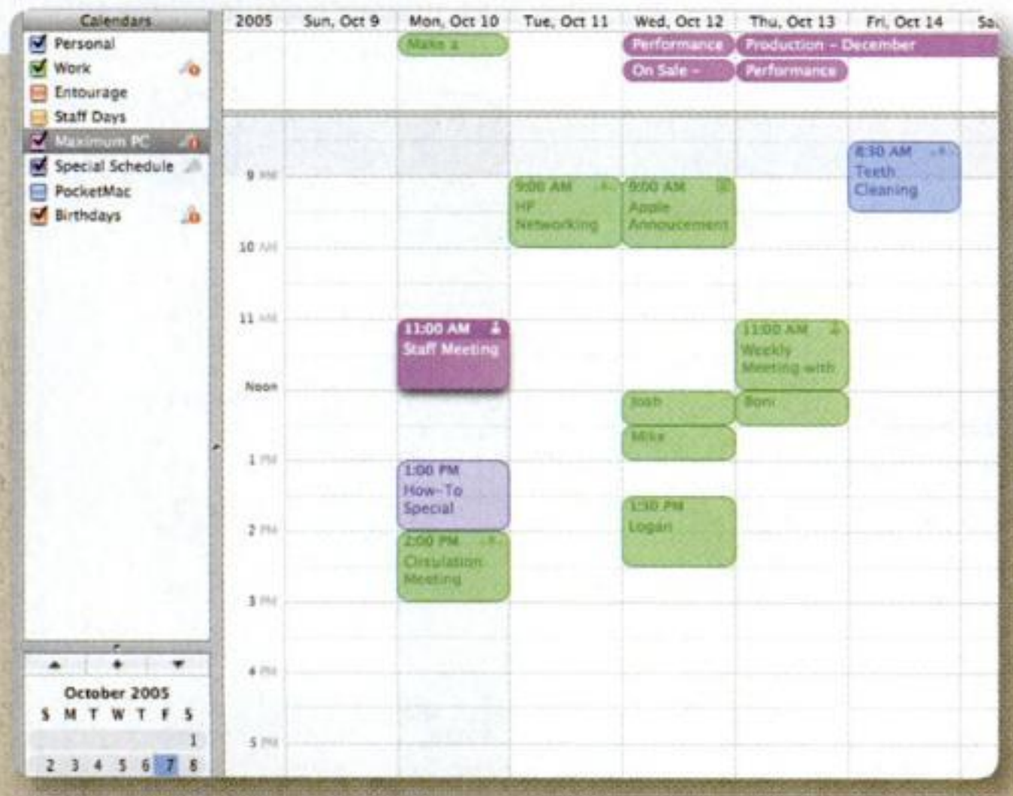
The difference was astounding. The app is lightning-fast, handling even my super-size 1GB IMAP mailbox with ease, and it has one of the best spam filters I've tested.

Lest you think I'm just blowing smoke here, I get a *lot* of spam. Every day, I'm sent about 3,000 messages, 97 percent of which are filtered by the company's anti-spam software before they hit my Inbox. Of the remaining 90 messages, about half are spam of one sort or another. *iMail's* spam filter flags between 40 and 43 of those 45 messages as spam. That's a better ratio than any other app I've tested.



***iMail* includes one of the best spam filters I've ever used. The interface is clean, simple, and fast.**

ICAL AND THE ADDRESS BOOK



Setting up multiple calendars in *iCal* gives you lots of flexibility, and the ability to post your calendars online kicks ass.

While I'm on the subject of productivity apps, I want to call out the deadly duo—*iCal* and *Address Book*. *iCal* is a bare-bones calendar app that lets you use as many calendars as you want. The *Address Book* stores virtually everything you need to know about all of your contacts, and makes that info available to every app on the system. Both apps use standard file formats: ICS files for *iCal* and vCards for *Address Book*, which makes it a snap to move your info to any other app. Naturally, all the info stored in both applications is easy to synchronize with my phone and PDA using Apple's integrated phone- and PDA-syncing utility *iSync*. Unfortunately, I had to buy a third-party application for my Blackberry, (available at **www.pocketmac.net**).

Using *iCal*, I created separate calendars for different types of tasks—one calendar for personal appointments, one for work-related appointments, and one for my curling club's schedule. Each calendar is color-coded and you can upload any or all of your calendars to a website or .Mac account. You can even subscribe to third-party calendars hosted on the Internet that include tons of useful information, ranging from your favorite baseball team's schedule to TV listings.

"Genius."

- Xbox.com

"*Halo* with chips"

- Maxim magazine

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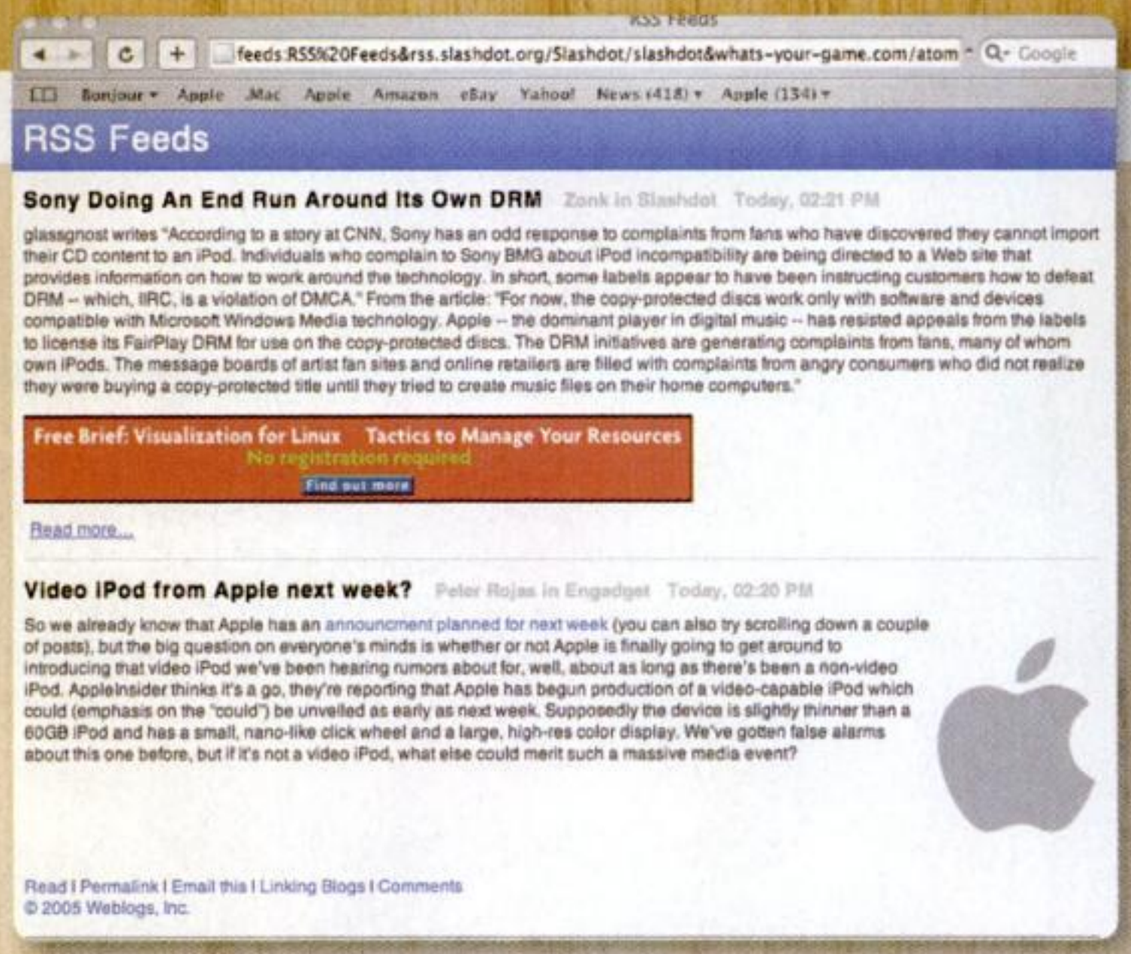
Getting into the Nitty Gritty

THE APPLE-PROVIDED APPS IN THE ILIFE SUITE ARE SURPRISINGLY POWERFUL, AND THE OTHER BUNDLED APPS AREN'T BAD EITHER

SAFARI VS. FIREFOX

Which web browser shall I use? Mozilla's kick-ass *Firefox* or Apple's homegrown *Safari*? The answer is a little of both. I really didn't want to give up the cross-platform support and handy extensions that I use every day with *Firefox*. However, when Apple released Tiger, it added an incredible RSS feed reader to *Safari*. So, after a few days of experimentation, I ended up using *Safari* as my RSS reader and *Firefox* as my actual browser.

What makes *Safari's* RSS reader so neat? When you place a bunch of bookmarks for different RSS feeds in a folder, *Safari* will put all the news stories from all of your sites on one page. Instead of visiting Slashdot, Shacknews, and Maximum PC every morning, I just visit my RSS page and click only the stories that interest me.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Google
Bonjour Apple .Mac Apple Amazon eBay Yahoo! News (418) Apple (134)
RSS Feeds
Sony Doing An End Run Around Its Own DRM Zonk in Slashdot Today, 02:21 PM
glassgnost writes "According to a story at CNN, Sony has an odd response to complaints from fans who have discovered they cannot import their CD content to an iPod. Individuals who complain to Sony BMG about iPod incompatibility are being directed to a Web site that provides information on how to work around the technology. In short, some labels appear to have been instructing customers how to defeat DRM -- which, IIRC, is a violation of DMCA." From the article: "For now, the copy-protected discs work only with software and devices compatible with Microsoft Windows Media technology. Apple -- the dominant player in digital music -- has resisted appeals from the labels to license its FairPlay DRM for use on the copy-protected discs. The DRM initiatives are generating complaints from fans, many of whom own iPods. The message boards of artist fan sites and online retailers are filled with complaints from angry consumers who did not realize they were buying a copy-protected title until they tried to create music files on their home computers."
Free Brief: Visualization for Linux Tactics to Manage Your Resources
No registration required
Find out more
Read more...
Video iPod from Apple next week? Peter Rojas in Engadget Today, 02:20 PM
So we already know that Apple has an announcment planned for next week (you can also try scrolling down a couple of posts), but the big question on everyone's minds is whether or not Apple is finally going to get around to introducing that video iPod we've been hearing rumors about for, well, about as long as there's been a non-video iPod. AppleInsider thinks it's a go, they're reporting that Apple has begun production of a video-capable iPod which could (emphasis on the "could") be unveiled as early as next week. Supposedly the device is slighty thinner than a 60GB iPod and has a small, nano-like click wheel and a large, high-res color display. We've gotten false alarms about this one before, but if it's not a video iPod, what else could merit such a massive media event?
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***Safari* doesn't really swirl my spaghetti for browsing, but its integrated RSS reader can't be beat.**

ILIFE APPS

Apple spent a lot of time touting its suite of *iLife* apps, and quite frankly, I'm not entirely sure why. Sure, the music player and the video editor are powerful and easy to use—in fact, I managed to hack together a reasonably entertaining video in just 15 minutes including rendering time—but let's face it, the *iLife* bundle won't in and of itself convince a PC user to switch.

iMovie is roughly equivalent to *Windows MovieMaker* (although *iMovie* actually exports industry-standard formats in addition to Apple's proprietary formats, unlike *MovieMaker*). *iTunes* is a great music player and manager, but it's readily available for Windows. *iDVD* is a fairly basic DVD mastering app, similar to *MyDVD* for the PC. It lets you create DVD movies with menus and chapter breaks, and it's almost completely idiot-proof. *iPhoto* is a decent image-management application that lets you do rudimentary photo touch-ups, makes it easy to label and tag all your images, and lets you create web-based photo galleries. It's remarkably similar to *Picasa* or Adobe's *Album* program.

Garageband, on the other hand, is an exceptional addition. It's an eight-track audio recording application that lets you either import your audio tracks, create new ones with MIDI instruments, or create (and use) loops in your song. I'm not aware of an analog on the PC, at least one that doesn't cost hundreds of dollars.

Apple's integrated video editor *iMovie* is easy to use, and will export to industry-standard MPEG-based formats.

The *iLife* apps don't add a ton features that are unavailable to PC users, but they do provide a lot of useful end-user functionality to every Mac that Apple sells.

USING UNIX APPS

One of the first things I did with OS X was install *fink*, an application-management utility for Unix apps on OS X. Then I installed *X Windows* and a couple of other apps. Beyond that, I never really needed to use the Unix side. Any time I wanted to use a Unix app, a quick Google search found a native OS X application that would work just as well, without the hassle of mucking with the Unix underpinnings of the OS.

GAMING ON OS X

Enter catch number-one. Aside from a few developers that release games on Mac and PC, notably Blizzard, Maxis, and id, there aren't many games available for OS X. Unlike Microsoft, Apple hasn't actively sought out game developers, there's no "designed for game developers" analog to DirectX on OS X. Instead game developers need to use the same programming interfaces for 3D rendering and game audio as other Mac applications. That can make ports more difficult; instead of just porting from Windows to OS X, the developer also has to rewrite the graphics renderer using OpenGL. Maybe when Apple makes the shift to Intel processors in 2006, it'll integrate a DirectX clone?

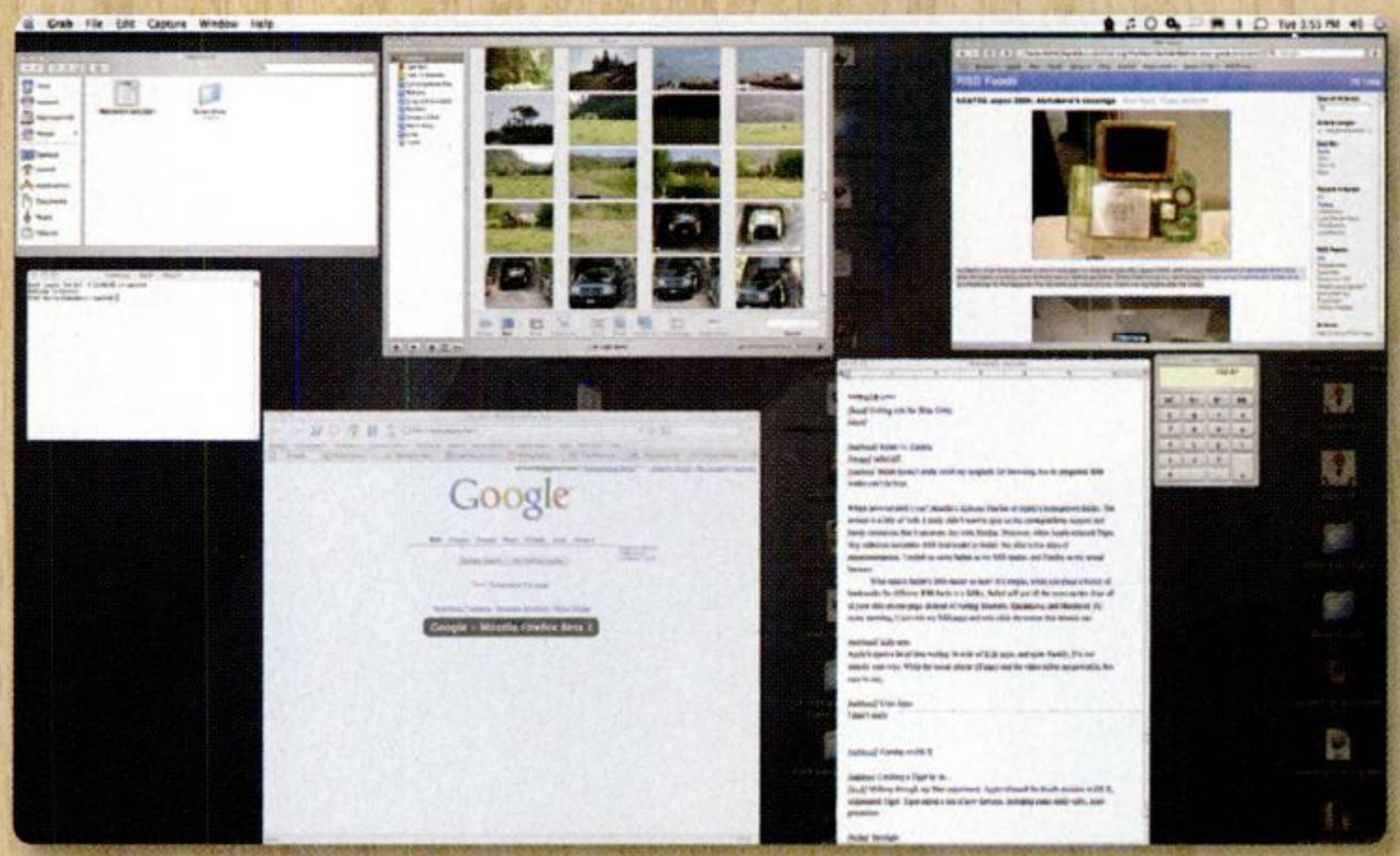
The Exciting Conclusion

AFTER SPENDING NINE MONTHS WITH OS X, I HAVE A PRETTY GOOD IDEA WHAT IT DOES BETTER THAN WINDOWS AND WHAT IT DOES WORSE. HERE'S MY FINAL WORD ON THE MACINTOSH

I'm surprised to say this now, but I really dig OS X. Since the last time I regularly used a Mac (in 1998), the Mac OS and Windows have come full circle. Back then, the Mac was undeniably designed for newbies and first-time computer buyers, with friendly icons, limited configuration options, and a safe-for-neophytes interface. In those days, Windows took quite a bit of work to keep running well—face it, the frequent reinstalls that Win9x operating systems required are *not* newb-friendly.

Now, XP is the dumbed-down, any-one-can-use-it OS, and OS X is clearly designed for power users. With its Unix underpinnings (and the bash shell to use Unix effectively), this is an OS that screams to be tweaked. As a power user, I love the fact that I can easily make PDFs from any application that can print—without taking nine minutes to launch *Acrobat*. The OS's Exposé function, which lets you see every open window, is like a bad habit I can't break. When I'm on my Windows machine at home, I continually hit my Exposé button, expecting wonderful things to happen and experiencing only disappointment.

That said, OS X isn't without flaws. The lack of a real gaming scene is enough to prevent me from making a permanent switch. I'm also concerned that all the Apple-developed applications for nearly every single task are a short-term fix but a long-term problem. While there are a ton of garage developers using the development environment included with every copy of OS X, lots of large commercial developers are scared that as soon as they release their killer app, Apple will start including an Apple-developed version free with the OS.



Hit one button and Exposé will instantly rearrange every open window on your system. It sure beats the hell out of Alt+Tab.

The other huge problem is that you're tied to Apple's hardware. While the folks at Apple build really pretty machines, they're just not upgradeable enough for my tastes. When Apple transitions to Intel processors next year, I sincerely hope it will release an upgrade option that will let me dual-boot OS X with Windows on a PC that I've built. Until then, it's back to Windows for me. MPC

CATCHING A TIGER BY ITS...

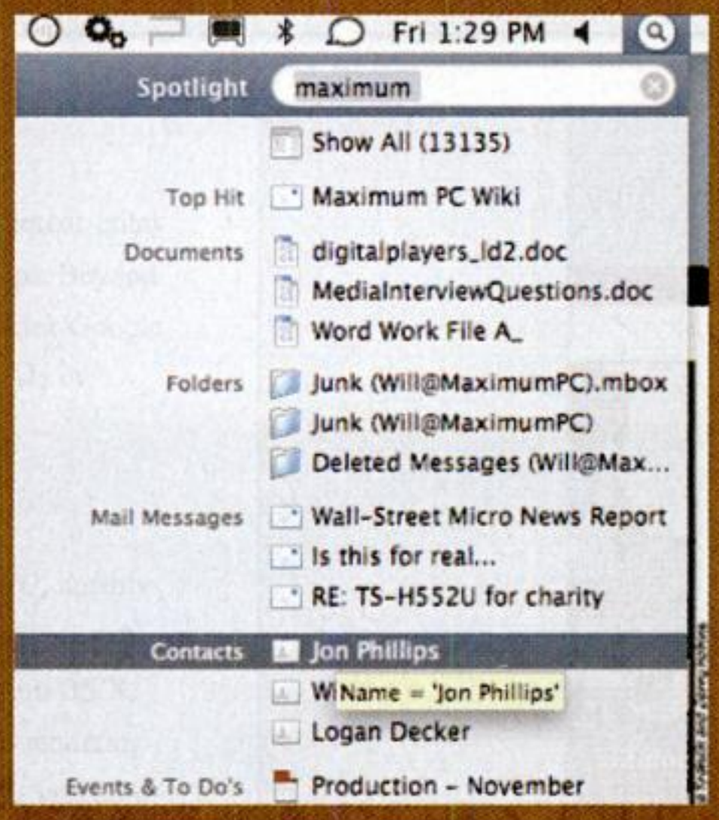
Midway through my Mac experiment, Apple released the fourth revision to OS X, code-named Tiger. Tiger adds a ton of new features, including some nifty, next-generation stuff that we won't see on Windows until Vista ships.

AUTOMATOR

Think of this app as Applescript for Dummies. Nearly every OS X application has programming hooks that make it easy to write simple scripts to perform common tasks—at least if you know how to write Applescript. *Automator* lets even neophytes string predefined tasks together using an easy-to-understand graphical interface.

SPOTLIGHT

Lightning-fast search of everything on your PC. That means pictures, music, movies, email, and even the contents of your documents. Many applications tie into Spotlight—including *Mail*, *iTunes*, and *iPhoto*—so you can run Spotlight-speed searches that are limited to a particular type of data. You can even save a search as an automatically updating virtual folder.



Tiger's high-speed Spotlight search lets you keyword search your entire hard drive, in a snap.

I'd love it if Spotlight supported nested searches. Right now, if I want to find all the budget documents with create dates inside 2004, I have to search for budget, then manually pick out the relevant files, which is a drag.

DASHBOARD

This app is a blatant rip-off of *Konfabulator*, and an inferior one to boot. While *Konfabulator's* widgets are embedded in your desktop, *Dashboard* is only visible when you press a hotkey. The beautiful thing about *Konfabulator* widgets are their always-on nature. I can count the number of times I've used *Dashboard* on one hand.

Copyrighted material

Psst! Wanna buy a Player?

Maximum PC hits the streets to bring you the scoop on 10 new portable audio and video players!

—LOGAN DECKER

In simpler times, the selection of available MP3 players boiled down to brand X and brand Y, with brand Z available only in South Korea. And back then, few folks even dreamed of carrying a library of movies to watch on the long buggy ride to the county fair. Today, flash memory, miniature hard drives, lossless codecs, and touch-sensitive interfaces are all matters to be considered when choosing a digital audio player, and video players rely on your understanding of video codecs, OLED screens, DVD ripping, and viewing angles, to select the best one for your cravings.

Don't take a stranger's word for it. We begged for, bought, and stole 10 of the latest portable players and gave them a thorough examination, so the next time you slip some shady character your cash, you'll know exactly what you're getting. Unless, of course, it's a knockoff, in which case all we can say is, *sucker!*

PHOTOGRAPHY BY MARK MADEO

The Digital Audio and Video Player Buyers Guide

The four most important questions to answer before you buy

HOW WILL YOU USE IT?

If you're just looking for a jogging companion, there's no question about it: You want a flash memory-based digital audio player. Such players are lighter, more rugged, and generally offer a longer battery life than hard drive-based players. They're also much less likely to expire after a drop or two from waist-height. With capacities up to 4GB, there's ample room for hours of MP3s.

Hard drive-based players, however, offer *massive* capacities up to 60GB—which is necessary if you simply must have your entire music collection on hand at all times, or if you want to transport gigs of data wherever you go.

WHAT WILL YOU BE LISTENING TO?

Thankfully, we no longer have to worry about players that choke on MP3s encoded at very high or variable bit rates (VBR)—we haven't had that problem in years. But now we're faced with online downloading services that use different codecs and digital-rights management schemes that aren't compatible with all players.

Nonetheless, the choices aren't tough ones. If you want to listen to tracks purchased from the popular iTunes music store, then it's the iPod or nothing. If you shop at Napster or other sites that offer protected WMA tracks, then you'll want a player that sports the PlaysForSure badge on the packaging (note, however, that few players yet support the other Microsoft digital-rights management, Janus, which locks down tracks "rented" on a subscription basis from Napster To Go). Of course, you can always burn your purchased music to disc and rip the contents to unprotected MP3s, but the resulting loss in quality from recompression can vary from barely noticeable to devastating. If you just buy old-fashioned CDs and rip them to open formats, you have none of these problems.

Sites are beginning to offer protected video files for rental or purchase, but with their pathetically sparse catalogs, we can't recommend any of them at this time.

Not everyone needs a $400 iPod. Consider your options carefully when choosing an MP3 player—there are plenty of them!

CAN YOU AFFORD TO UPGRADE THE EARBUDS?

We're happy to report that bundled earbuds have vastly improved in quality—even some obscure brands have surprised us with good reproduction and minimal distortion at high volumes. But we still recommend trading up; there's no easier way to get better sound from your player. Casual listeners can get away with $30 earbuds with bass-boosters—environmental noise will negate the benefits of higher-end 'buds. But purists should budget for earbuds that seat themselves in your ear canals, blocking out ambient noise and delivering wider frequency response (see the accessories section on page 51 for our recommendations).

ARE YOU WILLING TO RIP AND ENCODE YOUR OWN VIDEO?

Thanks to the Digital Millennium Copyright Act, no portable video player (PVP) manufacturer offers simple, one-click software for converting your commercial, CSS-encrypted DVDs to compressed video files. (Even though the courts have ruled that making copies for backup or personal use is "Fair Use," breaking the CSS encryption remains illegal.) So if you want to rip your DVDs, you'll have to download a DVD-ripper on your own—and freeware DVD-rippers are vanishing under fire from the entertainment industry.

While most PVPs support MPEG-4 video compression, which includes Divx, Xvid, and WMV, there's no guarantee that video you download from the Internet will play on your particular player. That's because video is often encoded using optional tweaks or nonstandard audio codecs that some players can't decode (which is why we test all PVPs with the same handful of downloaded videos, to evaluate how flexible the firmware is with nonstandard files). Another caution: The processors in most PVPs are unable to play WMV files at resolutions above 320x240.

Creative 20GB Zen Sleek Photo

The sound is profound, but frustrations abound

It's relatively bulky, and sports a vexing interface and a demonic touch-sensitive scroller, but if you aren't too snooty about the potholes, Creative's hard drive-based Zen Sleek delivers the great sound we expect from a high-end player.

There's only a whisper of distortion at the highest volume, which is *way* up there, and at more reasonable levels you get crisp, sparkling reproduction across the frequency spectrum. Of course, you can still massage the sound with well-tuned equalization presets, or season to taste with the five-band custom EQ facility. The FM tuner offers the best reception we've ever experienced in an MP3 player, if you're into that kind of thing, and the earbuds are above-average, though we still recommend trading up. You can load data and audio files using Windows Explorer, or synchronize your music collection with *Windows Media Player 9;* you only need the bundled *Creative Sync Manager* software to sync PIM functions like contacts, task lists, and calendaring.

SPECS

FORMATS	MP3, WMA (including protected WMA), WAV
BATTERY LIFE	13:31 (hours:minutes)
WEIGHT	5.6 ounces
DIMENSIONS	4 x 2.25 x .75 inches

The hardware and software interfaces, however, are tragic. The touch-sensitive scroll pad is a disaster—much too hyperactive at even the lowest sensitivity setting. Navigating the labyrinthine menu system requires no less than two hardware buttons and stroking and clicking that damn scroll pad. The 2-inch color OLED display is fine, if somewhat grainy, but we were heartbroken that we couldn't view photos and listen to music at the same time, a limitation that reduces the appeal of this spectacular-sounding digital audio player.

Creative's 20GB Zen Sleek looks good and sounds great, but it can be hell to work with.

CREATIVE ZEN SLEEK PHOTO **7**

$270, www.creative.com

Apple 2GB iPod Nano

We came, we heard, we were conquered

The first thing we noticed about the iPod Nano was the thin shingle of acrylic applied to the player's china-white fascia, which harkens back to the design of the original iPod introduced in 2001. This nostalgic touch seems appropriate—we're guessing that this is the iPod that Apple was after all along, made possible today by improved technology, affordable flash memory, and years of refinements.

The iPod Nano simply feels *right*. The right size, the right weight, the right proportions, the sparkling 1.5-inch color display (with photo support), and enough capacity for everyone but gluttons. The hardware interface is as unintimidating to technophobes as it is unobtrusive to users who want to access advanced features, including new ones like syncing with *Outlook*. And then there's the snug-a-bug integration with the graceful and brainy *iTunes* media player and download service.

The sound is exquisite, especially when paired with high-end earbuds like Shure's yummy E4c set. The iPod Nano includes support for the Apple Lossless codec, and the EQ presets are effective but not overbearing. And why don't other players offer the ability to hear audio during a scan, or fast-scrolling to a specific section of the track?

SPECS

FORMATS	AAC (including protected AAC), MP3, WAV, Apple Lossless, AIFF
BATTERY LIFE	16:04 (hours:minutes)
WEIGHT	1.5 ounces
DIMENSIONS	3.5 x 1.6 x .27 inches

The only feature still curiously absent is a custom EQ, and of course, the iPod Nano is too catty to natively support WMV files. But our biggest gripe with the Nano is it's delicate fascia, which is *extremely* prone to scratches. The required case will bulk up this tiny player enough to knock it out of Kick Ass territory.

Otherwise, the iPod Nano is so perfectly executed that we find it difficult to imagine what the future of the Apple's revolutionary player may hold.

The iPod Nano is the best looking, finest sounding, easiest to use digital audio player known to mankind. We're still fighting over fondling privileges.

APPLE IPOD NANO **9**

$200, www.ipod.com

Cowon 1GB iAudio U2

Feature-crazed player settles for the bronze

If software features added weight to a digital audio player, Cowon's iAudio U2 would have the heft of a bowling ball. It plays MP3, WMA, WAV, ASF, and even OGG files (but not protected WMA). It's got an FM tuner, a custom five-band EQ jobber in addition to presets, and a handful of sound-ballooning effects. Tweakers can go nuts adjusting the scan speed,

COWON IAUDIO U2 **5**

$160, www.cowonamerica.com

SPECS

FORMATS	MP3, WMA (not protected), OGG, ASF, WAV
BATTERY LIFE	16:41 (hours:minutes)
WEIGHT	1.2 ounces
DIMENSIONS	2.9 x 1 x .7 inches

redecorating the intro screen, and even setting the iAudio U2 to play tracks in the order they were downloaded!

That's nice, but the sound charts below

The iAudio U2 lacks the beefy sound of other players that are smaller and equally well-appointed.

par, with fuzzy bass that's only aggravated by EQ and DSP effects. That's too bad, because the bundled earbuds are exceptionally good, reproducing every click and audio artifact that the iAudio U2 coughs up.

JVC 1GB XA-MP101B

Well, at least it's not ostentatious

Although it's compact and not-unattractive, the XA-MP101B (a name unlikely to catch on like Kleenex, Coke, or the iPod) appears to be blithely unaware of the supercharged models to the left and right of its seat on store shelves. Those products offer more features, capacity, and better design at roughly the same price.

For starters, the claim of USB 2.0 transfer rates should be taken with a huge salt lick; we experienced rates closer to USB

JVC XA-MP101B **3**

$190, www.jvc.com

SPECS

FORMATS	MP3, WMA (including protected WMA)
BATTERY LIFE	16:19 (hours:minutes)
WEIGHT	1.5 ounces
DIMENSIONS	2 x 2 x .5 inches

1.1. The XA-MP101B is the only player in this roundup to take a pass on support for playlists or ID3 tag navigation—unacceptable in players with capacities of 512MB or more.

On the bright side, you'll get surprisingly

If you're determined to spend as little as possible on an MP3 player, just wait for bummed-out music lovers to ditch JVC's XA-MP101B on eBay.

gutsy earbuds, slightly above-average battery life with a single AA battery, and a custom five-band EQ facility to compensate for the traumatic presets. Of course, for another 10 bucks or so, you can buy a much better MP3 player.

iRiver 1GB T30

The iPod for PC users

The T30 sounds fantastic, shoulder-to-shoulder with the iPod and Creative family of digital audio players. The earbuds are the best in the roundup. A single AA battery dishes out more than 19 hours of playback. Sorry for rushing through the basics, but with an MP3 player that's got enough features to fill a shipping crate, brevity is necessary.

The T30 is the only player in the roundup that allows you to gorge yourself on music from Janus-protected subscription music services like Yahoo

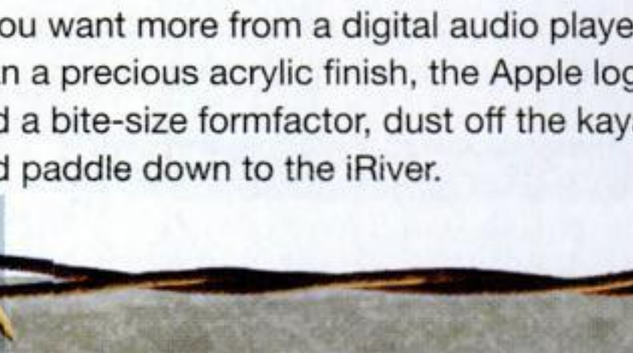
IRIVER T30 **9**

$150, www.iriveramerica.com

SPECS

FORMATS	MP3, WMA (including protected WMA and Janus-protected subscription services), ASF, OGG
BATTERY LIFE	19:22 (hours:minutes)
WEIGHT	1 ounce
DIMENSIONS	2.5 x 1.2 x 2 inches

Music Unlimited or Napster To Go. You can adjust the scan speed and playback speed, and listening modes include sequential and random playback of all tracks or just those within a single folder. There's a five-band custom EQ (which you probably won't need, as the presets are well tuned). The T30 can play OGG files, the line-in recorder uses the silence between tracks to create individual



The T30 is to the iPod what the PC is to the Mac: It might not have that luscious iPod interface, but it's still a power-listeners dream come true.

files from analog sources, and the voice recorder even includes voice activation.

It's a touch too large for our tastes, but if you want more from a digital audio player than a precious acrylic finish, the Apple logo, and a bite-size formfactor, dust off the kayak and paddle down to the iRiver.

THE BIG HOSTING SHOW-DOWN

1&1

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THE HOSTING HEAD TO HEAD

Not all web hosts are created equal!

Compare 1&1 with other companies and you'll see that not all web hosts are created equal. You want the most web for your money, so you need a web hosting specialist. 1&1 focuses all its resources on bringing you the most complete hosting packages at some of the best prices in the industry.

It's official: the gloves are off! With 4 million customers and more than a decade of web hosting experience, 1&1 stands head-to-head with all the industry heavyweights.

Compare for yourself and see why 1&1 is the world's #1 web host.

HERE'S WHY 1&1 IS THE C

- ☑ Named 2004 Hosting Growth Leader by Netcraft
- ☑ World's largest web host according to Netcraft
- ☑ More than 5 million domains and 4 million customers worldwide

Netcraft Ltd – www.netcraft.com

1.877.GO1AND1

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AVYWEIGHTS GO

LEAR WINNER IN WEB HOSTING:

- ☑ Over 15 years of industry experience
- ☑ Providing hosting services since 1995
- ☑ Innovative web applications
- ☑ 150 in-house programmers
- ☑ Unsurpassed connectivity
- ☑ One-stop shop for all your website needs
- ☑ 24/7 toll-free phone & E-mail support

FOR MORE DETAILS VISIT **1AND1.COM**

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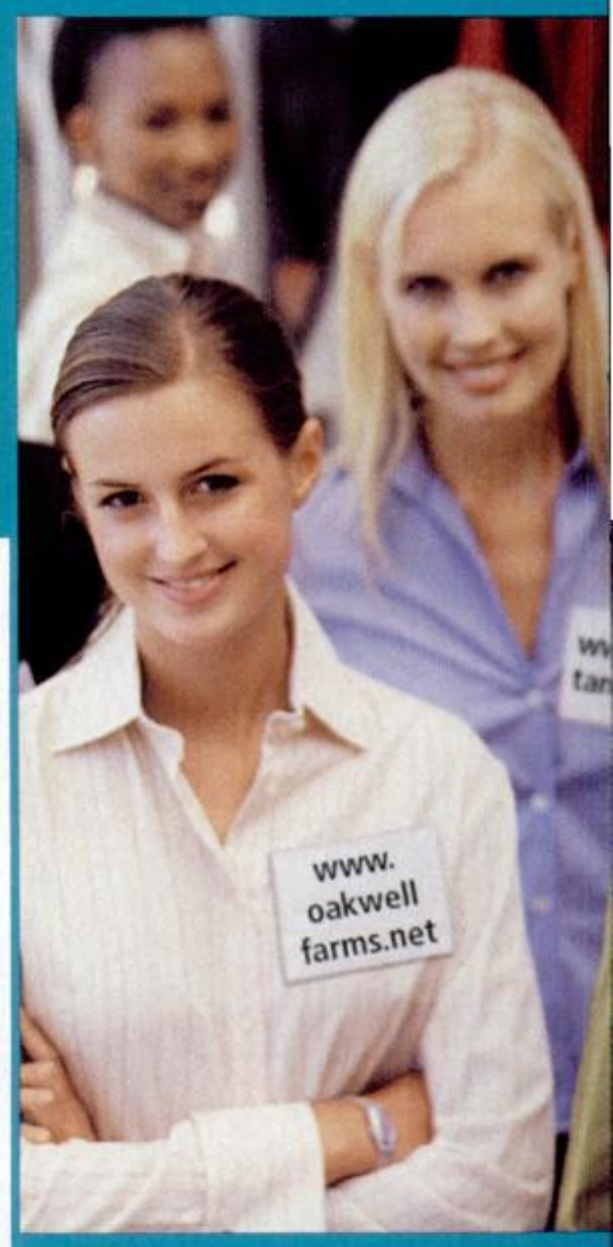
1&1 – THE BEST IN

1&1 is the leader in domain prices and the original home of low-cost domains. We're proud to offer feature-packed domains at consistently low prices… without conditions or hidden costs.

When it comes to domain registration, no one has a better offer than 1&1. Compare for yourself!



DO YOU JUST NEED A DOMAIN?

	1&1	Go Daddy	Yahoo!
.com|.net|.org|.info	$5.99	$8.95|$9.95 (.info)	$9.95
ICANN Fee	Included	$0.25	Included
E-mail Account	FREE 1 GB Mailbox Size	FREE 25 MB Mailbox Size	NO Mailbox Included
Total Annual Cost	$5.99	$9.20	$9.95

VALUE

1&1 delivers the best value for your money!

FREE WITH EVERY 1&1 DOMAIN ACCOUNT:

- ✓ **STARTER WEB PAGE** Choose your template and create a mini website in minutes!
- ✓ **SEARCH ENGINE TOOLS** Easily get your site listed on the leading search engines.
- ✓ **1 GB E-MAIL ACCOUNT**
- ✓ **DNS MANAGEMENT**
- ✓ **24/7 SUPPORT**
- ✓ **DOMAIN FORWARDING**

.co

.org

FREE PRIVATE DOMAIN REGISTRATION WITH ALL DOMAINS!

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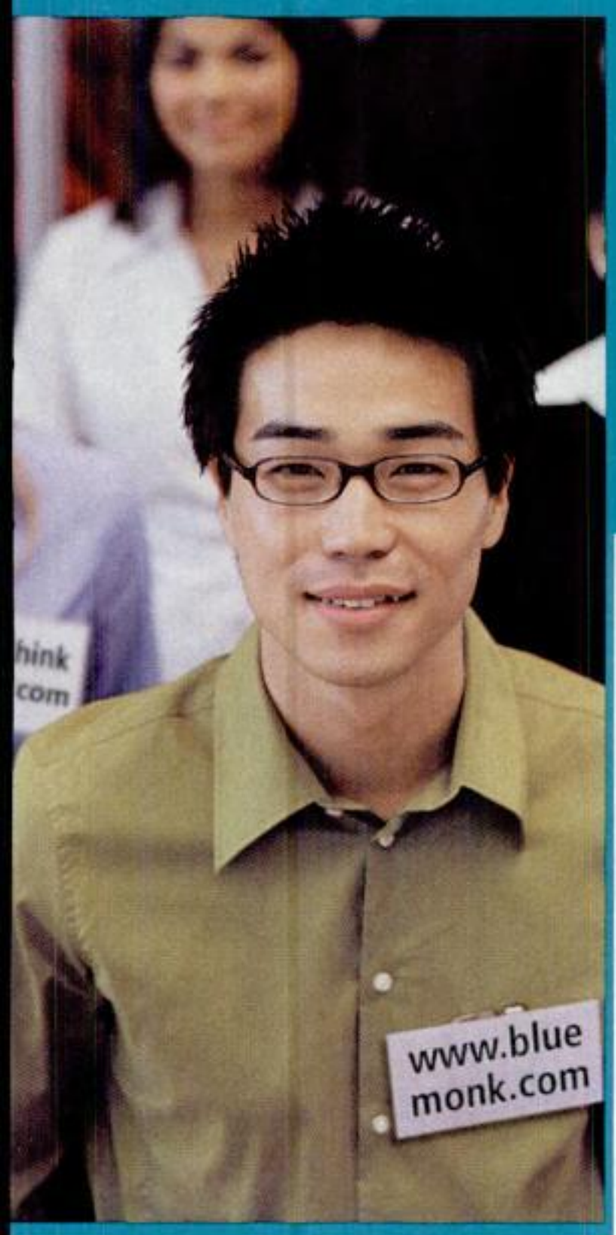
DOMAIN OFFERS



UP TO 5
FREE DOMAINS
WITH 1&1 HOSTING!

DO YOU NEED HOSTING TOO?

	1&1	Go Daddy	Yahoo!
.com|.net|.org|.info	Up to 5 FREE!	$1.99	1 Free!
ICANN Fee	Included	$0.25	Included

VALUE — 1&1 delivers the best value for your money!

FREE DOMAINS INCLUDED IN ALL 1&1 SHARED HOSTING PLANS!

When you sign up for any shared hosting plan from 1&1, up to 5 FREE domains are included! These domains are free for as long as you keep your shared hosting package with us and you can use your included domains however you'd like – register new domains or transfer existing ones to 1&1.

.com .net .info

When you register your domain with 1&1, your contact information will be confidential and hidden from spammers. And unlike with other registrars who charge $8 or more per year for this important feature, 1&1 includes it FREE with all domains!

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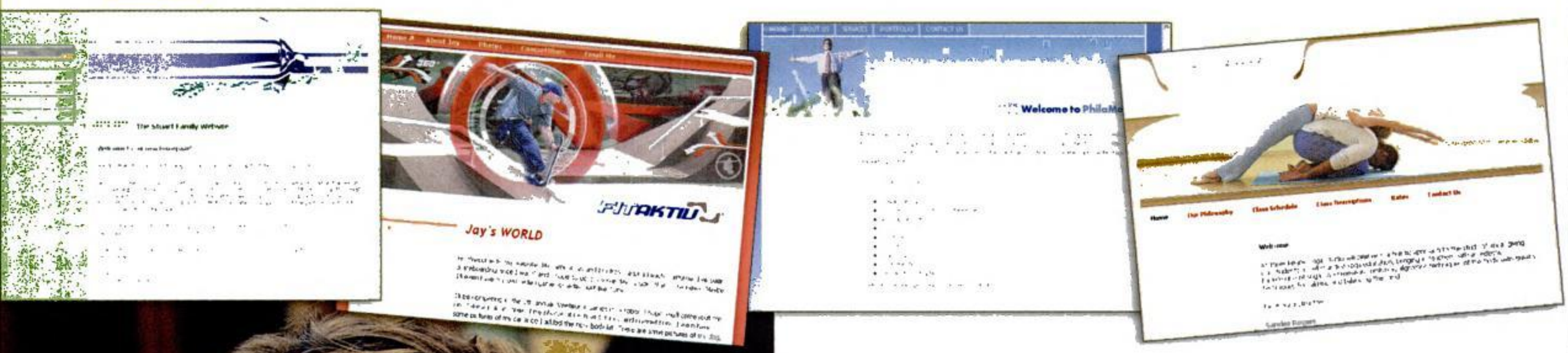
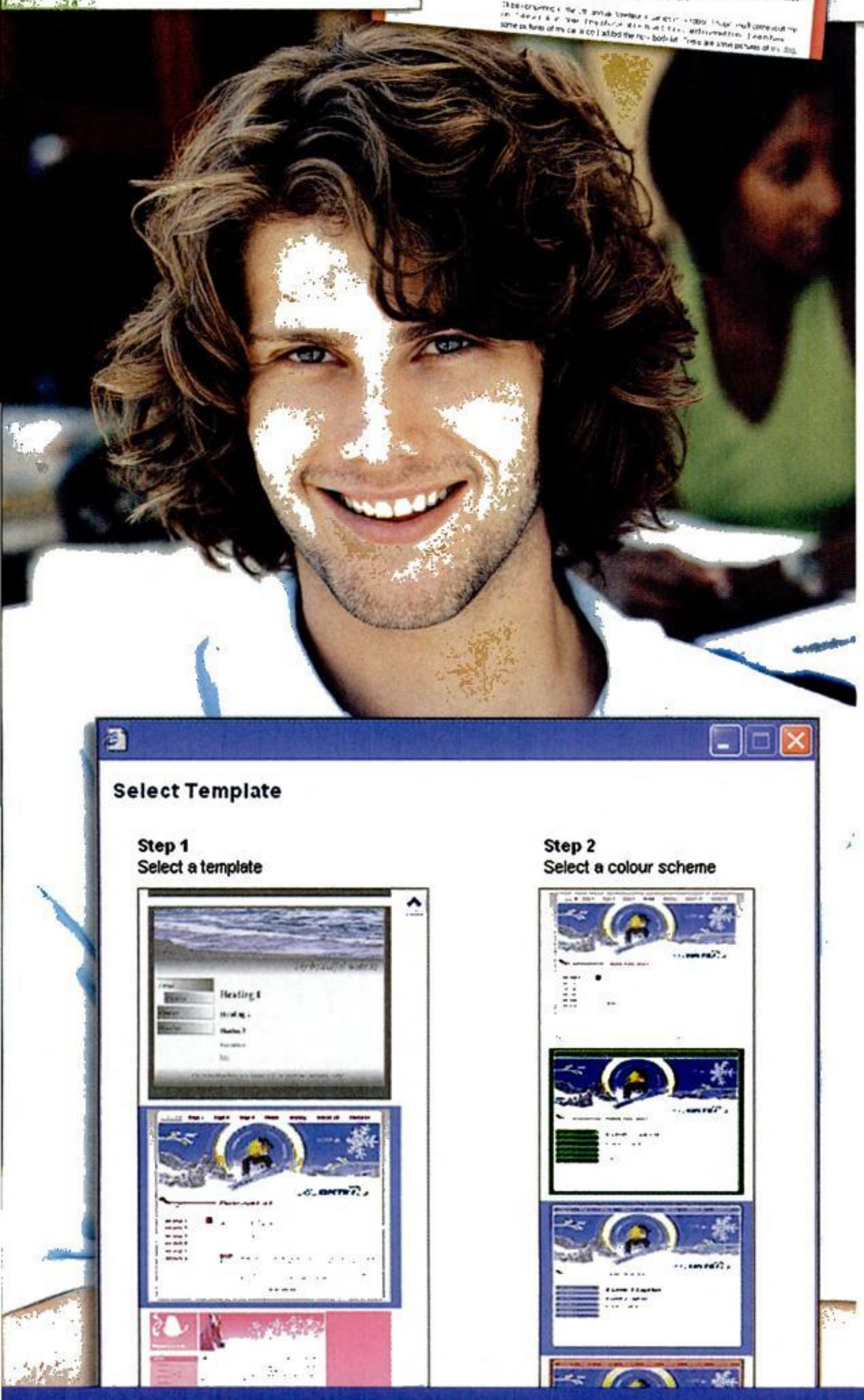
START UP YOUR BEG
QUICKLY AND EASILY





The 1&1 Beginner Package is our most affordable shared hosting solution and provides the quickest and easiest way to establish your first web presence.

1&1 FEATURE SPOTLIGHT:

Domain Included

FREE Private Domain Registration!

The 1&1 Beginner Package includes 1 free domain name. Register the .com, .net, .org or .info domain of your choice and 1&1 will pay for your domain for as long as you keep your shared hosting package with us!

1&1 WebsiteBuilder

Easily build your own website!

Included with all shared hosting plans, 1&1 WebsiteBuilder lets you design a professional-looking website with no HTML knowledge! Using simple point-and-click prompts and a built-in text editor, your site can be online in minutes. Creating your website has never been easier.

No setup fee

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INNER WEBSITE

1&1 – THE BEST BEGINNER PACKAGES

FREE DOMAIN INCLUDED

ALL-INCLUSIVE HOSTING 1&1 BEST VALUE GUARANTEE COMPARE FOR YOURSELF

	1&1 BEGINNER $2.99	Go Daddy ECONOMY $3.95
Price per month		
Included Domains	1	0
Web Space	600 MB	500 MB
Monthly Transfer Volume	25 GB	25 GB
E-mail Accounts	150 IMAP or POP3	100 POP3
Mailbox Size	2000 MB	10 MB
Website Builder	8 pages	Extra charge applies
Photo Gallery	✓	–
Database	1 MySQL (Linux)	1 MySQL (Linux)
Search Engine Tools	✓	Extra charge applies
PHP Support (Linux)	✓	✓
90-day Money Back Guarantee	✓	–
Support	24/7 Toll-free Phone, E-mail	24/7 Phone, E-mail

Plus $1.99 per year with non-domain purchase from Go Daddy

Plus $4.95 per month for a 5-page site with Go Daddy

You'll pay from $29.95 per year additional with Go Daddy

VALUE 1&1 delivers the best value for your money!

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BUILD YOUR PERSO WITH EASE

The 1&1 Home Package offers an exceptional value for your money. Showcase your family, hobbies or anything else you'd like to share with the world.

1&1 FEATURE SPOTLIGHT:

FREE Software Productivity Suite
A $600 value!

1&1's Software Productivity Suite gives you everything you need to create, publish, promote and optimize a successful online presence. The exclusive bundle features NetObjects Fusion 8, PhotoImpact 10 SE, search engine placement tools and many more tools for maximizing your website.

$6.99 shipping & processing fee applies.

1&1 Photo Gallery
Create an online photo album!

Add an online photo album to your website, quickly and with no programming skills! Choose from several eye-catching styles, select your favorite color scheme and layout, then import and organize your photos. Create slideshows with fade-in/fade-out transitions, background music and other professional effects.

1&1 WebStatistics
Analyze your website's performance!

Easy-to-use menus let you track visits, hits, referring websites, error pages and much more for a detailed analysis of how your website is performing. Display the information in the format you choose – pie charts, bar graphs or simple numeric output – and use the data to maximize the success of your website.

No setup fee

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NAL WEBSITE

1&1 – THE BEST PRIVATE PACKAGES

ALL-INCLUSIVE HOSTING
1&1 BEST VALUE GUARANTEE
COMPARE FOR YOURSELF

FREE DOMAINS INCLUDED

	1&1 HOME	YAHOO! STARTER	Go Daddy DELUXE
Price per month	$4.99	$11.95	$9.95
Included Domains	2	1	0
Web Space	2000 MB	2000 MB	2000 MB
Monthly Transfer Volume	100 GB	25 GB	100 GB
E-mail Accounts	500 IMAP or POP3	25 POP3	500 POP3
Mailbox Size	2000 MB	2000 MB	10 MB
Website Builder	12 pages	✓	Extra charge applies
Photo Gallery	✓	✓	✓
Dynamic Web Content	✓	✓	–
Web Statistics	✓	✓	✓
Chat Channels	✓	–	–
Database	10 MySQL (Linux)	–	10 MySQL (Linux)
Search Engine Tools	✓	Extra charge applies	Extra charge applies
PHP Support (Linux)	✓	–	✓
Perl Support (Linux)	✓	–	✓
Software suite ($600 value)	✓	–	–
90-day Money Back Guarantee	✓	–	–
Support	24/7 Toll-free Phone, E-mail	24/7 Toll-free Phone, E-mail	24/7 Phone, E-mail

Plus $1.99 per year with non-domain purchase from Go Daddy

Plus $8.95 per month for a 10-page site with Go Daddy

You'll pay from $29.95 per year additional with Go Daddy

VALUE

1&1 delivers the best value for your money!

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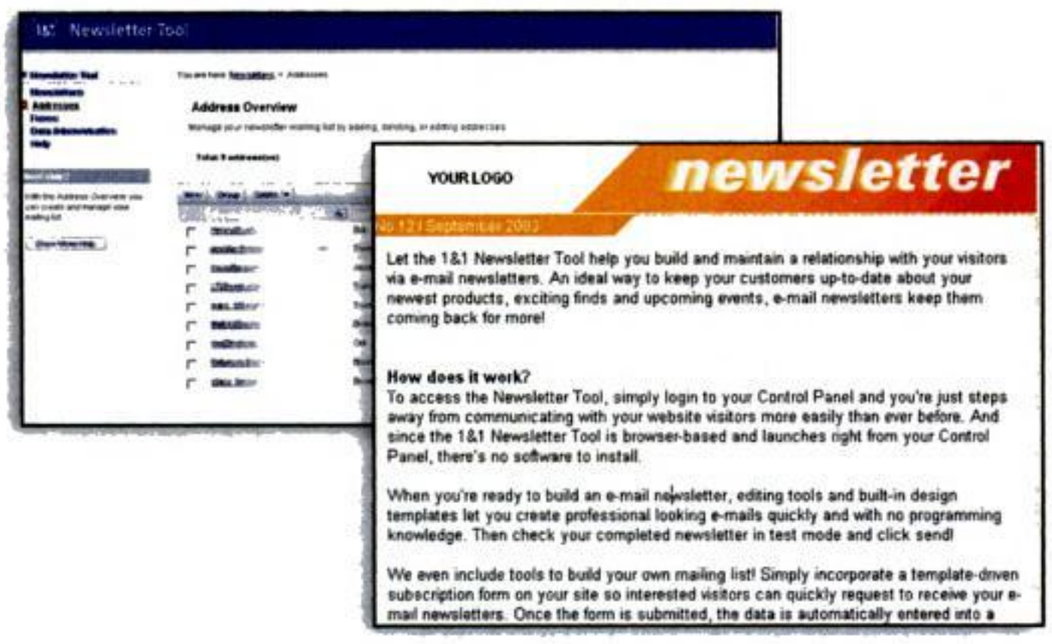
LET YOUR PROFESSI
WORK FOR YOU

If you run a small- to medium-sized business and are looking to easily build a professional, interactive website, the 1&1 Business Package is your solution!


Newsletter Tool
Address Overview
YOUR LOGO
newsletter
Let the 1&1 Newsletter Tool help you build and maintain a relationship with your visitors via e-mail newsletters. An ideal way to keep your customers up-to-date about your newest products, exciting finds and upcoming events, e-mail newsletters keep them coming back for more!
How does it work?
To access the Newsletter Tool, simply login to your Control Panel and you're just steps away from communicating with your website visitors more easily than ever before. And since the 1&1 Newsletter Tool is browser-based and launches right from your Control Panel, there's no software to install.
When you're ready to build an e-mail newsletter, editing tools and built-in design templates let you create professional looking e-mails quickly and with no programming knowledge. Then check your completed newsletter in test mode and click send!
We even include tools to build your own mailing list! Simply incorporate a template-driven subscription form on your site so interested visitors can quickly request to receive your e-mail newsletters. Once the form is submitted, the data is automatically entered into a

No setup fee

1&1 FEATURE SPOTLIGHT:

1&1 Dynamic Content Catalog

Add real-time web content!

Enrich your site with real-time news and fresh web content from a wide range of topics such as news headlines, business reports, sports highlights, travel destinations, online games, weather forecasts and more. Integration is easy, no HTML knowledge is required, and thanks to automatic updates, your content is always current and completely maintenance-free!

1&1 Newsletter Tool

Maintain relationships via E-mail!

Create and send professional-looking E-mail newsletters, easily and with no programming hassles. Keep your customers up-to-date about your newest products and upcoming events. Build your own mailing lists, manage addresses, track results and more.

In2site Live Dialogue

Make your site truly interactive!

Chat with your visitors while they are using your website – live and in real time! This innovative type of quick and easy communication makes In2site Live Dialogue an ideal tool for sales, support and consulting professionals.

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ONAL WEBSITE

1&1 – THE BEST BUSINESS PACKAGES

ALL-INCLUSIVE HOSTING
1&1 BEST VALUE GUARANTEE
COMPARE FOR YOURSELF

FREE DOMAINS INCLUDED

	1&1 BUSINESS	YAHOO! STANDARD	Go Daddy PREMIUM
Price per month	$9.99	$19.95	$19.95
Included Domains	3	1	0
Web Space	4000 MB	4000 MB	4000 MB
Monthly Transfer Volume	200 GB	75 GB	200 GB
E-mail Accounts	1,000 IMAP or POP3	50 POP3	1,000 POP3
Mailbox Size	2000 MB	2000 MB	10 MB
Website Builder	18 pages	✓	Extra charge applies
Photo Gallery	✓	✓	✓
Dynamic Web Content	✓	✓	–
Web Statistics	✓	✓	✓
E-mail Newsletter Tool	✓	Extra charge applies	Extra charge applies
In2site Live Dialogue	✓	–	–
Chat Channels	✓	–	–
Form Builder	✓	✓	–
Database	25 MySQL (Linux)	MySQL support	25 MySQL (Linux)
Search Engine Tools	✓	Extra charge applies	Extra charge applies
PHP Support (Linux)	✓	✓	✓
Perl Support (Linux)	✓	✓	✓
Software suite ($600 value)	✓	–	–
90-day Money Back Guarantee	✓	–	–
Support	24/7 Toll-free Phone, E-mail	24/7 Toll-free Phone, E-mail	24/7 Phone, E-mail

Plus $1.99 per year with non-domain purchase from Go Daddy

Plus $12.95 per month for a 20-page site with Go Daddy

Add $9.95 per year with Go Daddy

Add $10 per month with Yahoo!

You'll pay from $29.95 per year additional with Go Daddy

VALUE

1&1 delivers the best value for your money!

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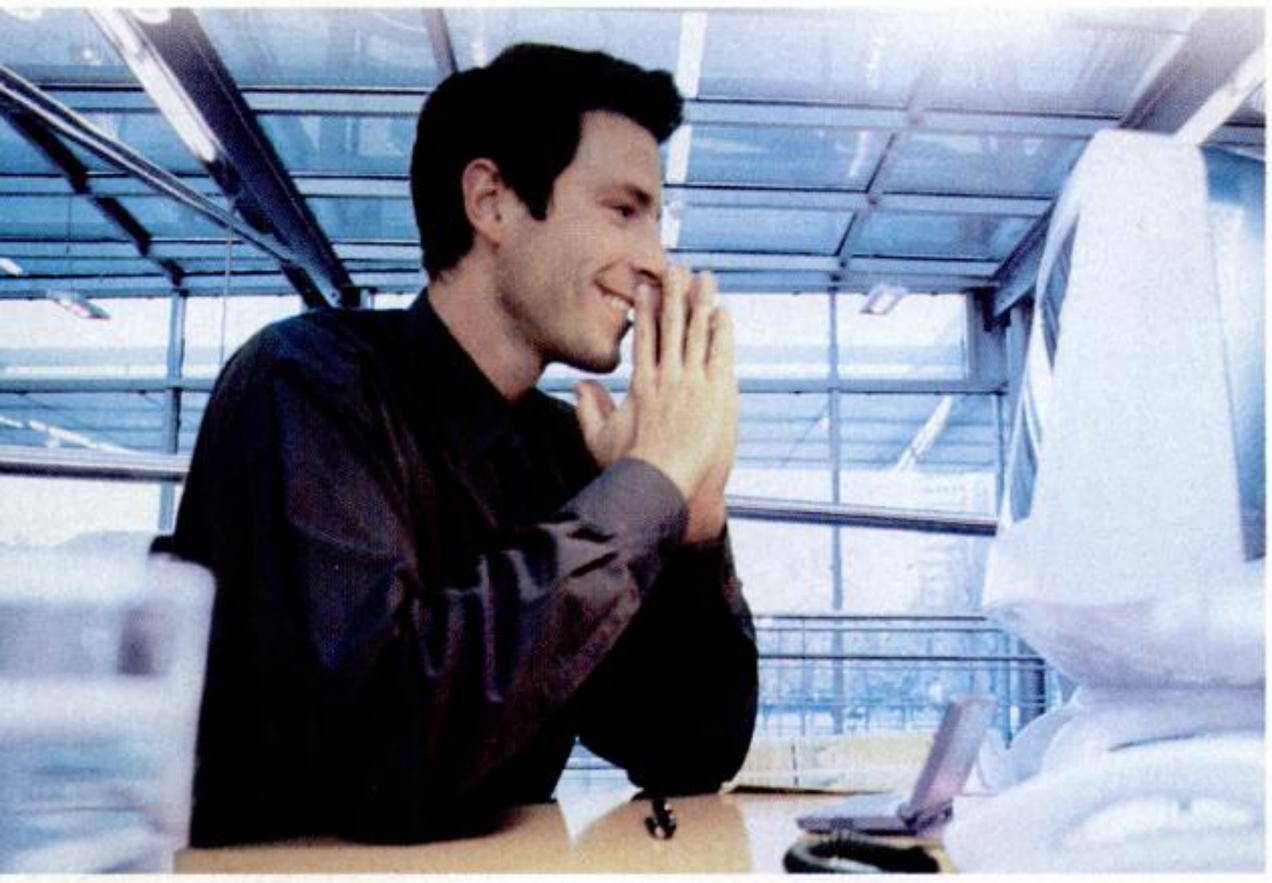
GET THE MAXIMUM WEB APPLICATIONS

With maximum web space, bandwidth and advanced developer capabilities, the 1&1 Developer Package was built for those who demand powerful Internet technologies.



Membership List		
Alan Bishop	634 E. 39th Street, New York, NY 10019	alanb@myhost.com
Stephen Bradshaw	1954 Corgin Street, Hudson, OH 44236	bradshaws@myhost.com
Catherine Leonard	64 Stanhope Drive, Pittsburgh, PA 15237	family@ myname.com
Carl Brown	653 Liberty Avenue, Wilmington, NC 28403	brownc2521@lycos.com
Tom Stowe	26 N. Hills Road, Chandler, AZ 85226	webunited@gmx.net
Helen McSweeny	817 Providence Hwy, Boston, MA 02116	helenmcsweeney@hot-mail.com

1&1 FEATURE SPOTLIGHT:

GeoTrust Dedicated SSL Certificate

Secure your website!

This first line of defense against online intruders ensures a safe exchange of information over the Internet. The lock icon shows your site visitors that their personal data is secure. One certificate is included with all 1&1 Developer Packages.

1&1 FormBuilder

Create feedback forms – easily!

Generate leads and gain valuable feedback with template-driven contact forms, online polls, event registrations and more. Adapt the templates to fit your site or easily build your own forms. The information entered is saved in its own database so you can view the results at any time.

1&1 WebDatabase

Easily organize large amounts of data!

It's never been easier to gather, organize and display large amounts of information. Simply select a template in the database building kit, define the individual fields you'd like to include, create a search or entry form that easily integrates into your website and more.

No setup fee

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POWER FOR YOUR

1&1 – THE BEST DEVELOPER PACKAGES

FREE DOMAINS INCLUDED

ALL-INCLUSIVE HOSTING 1&1 BEST VALUE GUARANTEE COMPARE FOR YOURSELF

	1&1 DEVELOPER	YAHOO! PROFESSIONAL
Price per month	$19.99	$39.95
Included Domains	5	1
Web Space	10,000 MB	10,000 MB
Monthly Transfer Volume	300 GB	200 GB
E-mail Accounts	2,000 IMAP or POP3	100 POP3
Mailbox Size	2000 MB	2000 MB
Website Builder	25 pages	✓
Photo Gallery	✓	✓
Dynamic Web Content	✓	✓
Web Statistics	✓	✓
E-mail Newsletter Tool	✓	Extra charge applies
In2site Live Dialogue	✓	–
Chat Channels	✓	–
Form Builder	✓	✓
Database	50 MySQL (Linux)	MySQL support
Search Engine Tools	✓	Extra charge applies
PHP Support (Linux)	✓	✓
Perl Support (Linux)	✓	✓
Dedicated SSL Certificate	✓	–
Software suite ($600 value)	✓	–
90-day Money Back Guarantee	✓	–
Support	24/7 Toll-free Phone, E-mail	24/7 Toll-free Phone, E-mail

Add $10 per month with Yahoo!

VALUE

1&1 delivers the best value for your money!

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"You'll get more for your money with 1&1."

1&1 is the only name you need to know in affordable web hosting. Our 4 million customers worldwide can tell you what makes us the world's #1 web host: VALUE.

1&1 offers all-inclusive hosting plans for every budget and every need, with no hidden fees and no gimmicks. The bottom line? Look to 1&1 for powerful, reliable web products at consistently low prices.

Andreas Gauger,
Chairman of
the Board

1&1 – THE #1 WEB H

Not many Internet companies can say they've been in business for nearly 15 years. Thanks to solid products, reliable services and a commitment to providing the most feature-rich web hosting packages at some of the most competitive prices available, 1&1 Internet has steadily developed into the world's biggest and best web host.

From home offices to corporate centers, 1&1's name has become synonymous with quality.

1&1 began offering its accessible and affordable hosting packages to a small – but loyal – European customer base nearly 10 years ago. The company's reputation for reliability, integrity and value allowed it to quickly expand throughout Europe, the U.K., and the U.S.

Today some 4 million people around the world rely on 1&1 for web hosting, domain registration and various other services.

1.877.GO1AND1

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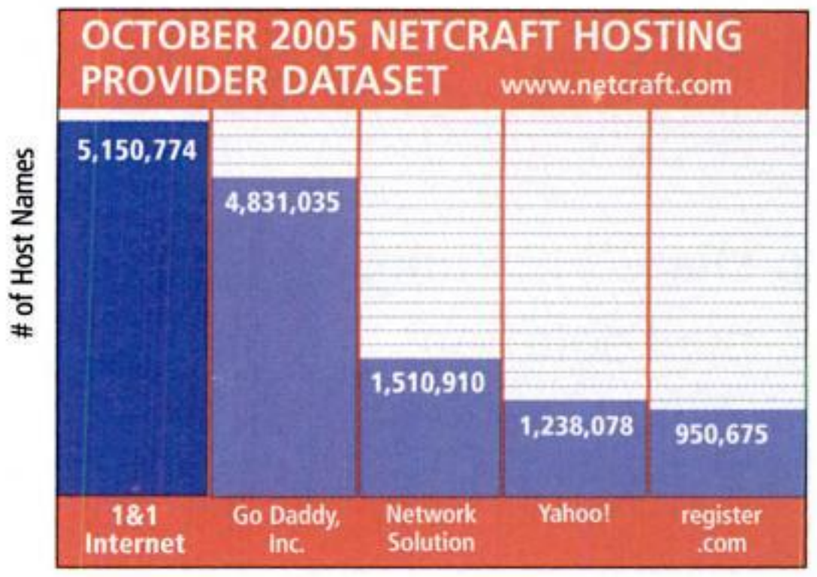
WORLD'S OST



1&1 – The World's #1 Web Host.

Here is how 1&1 stacks up against the competition.

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24/7 Free Express Support for total peace of mind

High-tech Data Center with more than 28,000 servers

90-day Money Back Guarantee

In fact, you can even find 1&1 on the high seas as the main sponsor of United Internet Team Germany, a contender for the coveted America's Cup yachting trophy.

Thanks to its size, strength and longstanding reputation for quality and dependability, 1&1 is more focused than ever on offering the absolute best value for your money. While the company has evolved into a major player in the global web hosting market, it remains even more committed to the basic principles that have contributed so much to its success: great products at low prices, with none of the too-good-to-be-true pricing gimmicks or small print "catches" you'll find elsewhere. As we move forward, we believe this ongoing commitment to helping customers succeed will bring us further growth and, subsequently, the ability to provide customers with a whole new dimension of online possibilities.

Visual Studio Magazine READERS CHOICE 2005 Award

AUGUST 2005 TOP 15 WEB HOST AWARDS DEDICATED SERVER HostReview

#1 Budget Hosting WEB HOST DIRECTORY AWARD WINNER www.webhostdir.com

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1&1 HAS EVEN MORE TO OFFER

In addition to shared hosting, 1&1 also offers some of the most affordable and feature-rich E-mail solutions, e-commerce hosting and dedicated servers.

1&1 MAIL

POWERFUL E-MAIL FOR YOUR HOME OR BUSINESS

1&1 Instant Mail is ideal for private users and allows you to send and receive personalized mail using your own domain name. 1&1 Microsoft Exchange Hosting gives you or your entire business reliable, affordable, up-to-date access to your critical information – anytime, anywhere.

- ✓ Anytime web access
- ✓ Virus & Spam protection
- ✓ Powerful online communications

1&1 INSTANT MAIL

$0.99 PER MONTH
No setup fee

1&1 EXCHANGE HOSTING

$6.99 PER MONTH
No setup fee

1&1 eSHOPS

EASY, YET SOPHISTICATED E-COMMERCE SOLUTIONS

1&1 eShops are as powerful as any major online retailer, but with no software or hardware to install and no programming skills needed. Let the online wizard help you get started! Choose your design template then add your personal touches to achieve the exact look you want.

- ✓ More than 30 design templates
- ✓ Web space, bandwidth and E-mail included
- ✓ Powerful marketing tools included

FROM $9.99 PER MONTH
No setup fee

1&1 DEDICATED SERVERS

POWERFUL SOLUTIONS FOR MAXIMUM PERFORMANCE

Take your web presence to the next level! 1&1 Root Servers and 1&1 Windows Server 2003 put you in the driver's seat with total control. Or sign up for a 1&1 Managed Server and let 1&1 handle all the server maintenance and administration.

- ✓ Includes one GeoTrust Dedicated SSL Certificate
- ✓ Advanced security for your data
- ✓ 24/7 hardware monitoring

FROM $69 PER MONTH

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Archos 40GB AV700 Digital Video Recorder

Big. Bulky. Blurry. Baloney.

If a portable video player that's more than 8 inches wide isn't what you're looking for, you're dismissed. Even if the big little screen experience sounds like fun, take a closer look before you swipe your credit card.

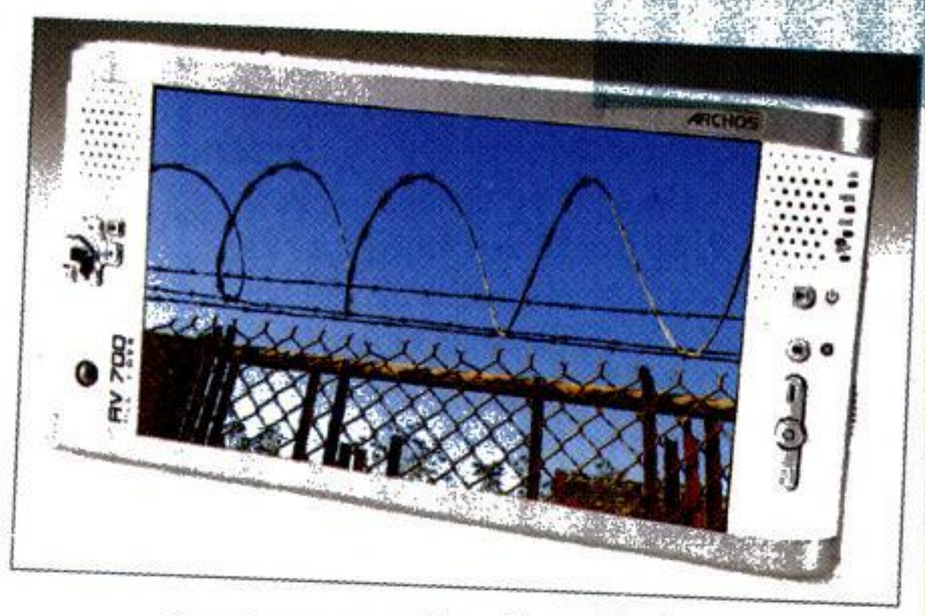
Compared with other portable video players, Archos' megalithic AV700—with its enormous 7-inch LCD display—is so extravagant it's almost vulgar. The display is acceptably bright and has an exceptionally wide lateral viewing angle, but the resolution is limited to 480x234 (although it will play higher-resolution video by down-sampling) and faint gridlines across the screen's surface further degrade the image quality. We hoped for redemption from the TV-out performance, but the video output from the bundled RCA connector was flat and lacked contrast—couldn't Archos have sprung for component cables, or even an S-Video connector?

ARCHOS AV700 — **5**

$600, www.archos.com

There's no great story to tell about MP3 playback. The AV700 conforms to the PlaysForSure standard implemented by many downloading services, but the volume ceiling is well below average. And don't get us started on the creaky built-in speakers.

We appreciate blue-ribbon features like scheduled video recording from analog sources, but the AV700 lacks a surprising number of basic playback capabilities. It supports Divx 5 and Divx 6 (yea!) files at bit rates exceeding DVD quality, but only supports WMV files encoded via the "simple profile" limited to 320x240. It won't play MPEG-1 or MPEG-2 or VOB files ripped from a DVD-Video, and doesn't display external subtitles. In short, there's not much to get hopped up about besides a gadget that looks fantastic on the coffee table.



Serving suggestion: Hang the humongous AV700 from a tree branch on the front lawn, and create your own drive-in theater!

SPECS

FORMATS	WMV (including protected WMV), Divx 5 and Divx 6, Xvid video; MP3, WMA (including protected WMA), WAV audio
BATTERY LIFE	3:09 (hours:minutes)
WEIGHT	20.8 ounces
DIMENSIONS	8.2 x 4.2 x .8 inches
SCREEN	7-inch LCD

Qool 5GB QMP-2210RX Personal Infotainment Centre

We dig that pretty little patch of screen

We're assuming "Infotainment Centre" means a portable video player that includes TV reception, although we'd prefer to avoid the term—it doesn't do the badass display on the Qool 5GB video player justice. The "World of Tomorrow" OLED screen delivers generous detail, especially noticeable in fast-motion scenes, which never blur as they often do with LCDs. And unlike LCD screens, OLED displays look just as good viewed from any angle, horizontally or vertically, so two people can watch the same movie without invading each other's space. There isn't as much color depth as with some LCD-based PVPs we've seen, but on a 2.2-inch screen this isn't a deal-breaker.

What's harder to accept is the player's relative incompetence with various compressed video formats, and its inability to play anything encoded at bit rates above 4Mb/s. If you only intend to encode video tailored for the Qool using the bundled software (a chore), this isn't a big deal, but you wouldn't want to endure the horror of having to re-encode already-compressed video files meant for PC viewing. There's no support for Divx 6, VOB files, or OGG media.

QOOL QMP-2210RX — **6**

$500, www.qoollabs.com

Audio playback is an afterthought, with poor earbuds and no equalization options. And don't be impressed by the included extra battery, as each one delivers about an hour and a half of video playback. Still, if you want to indulge yourself with OLED technology, the Qool PIC is your baby.

SPECS

FORMATS	WMV (including protected WMV), Divx 5 (not Divx 6), Xvid video; MP3, WMA (including protected WMA), WAV audio
BATTERY LIFE	1:31 (hours:minutes)
WEIGHT	1.5 ounces
DIMENSIONS	4.5 x 2.75 x .75 inches
SCREEN	2.25-inch OLED

The gorgeous display is cruelly sabotaged by battery life that won't get you through some feature-length films.

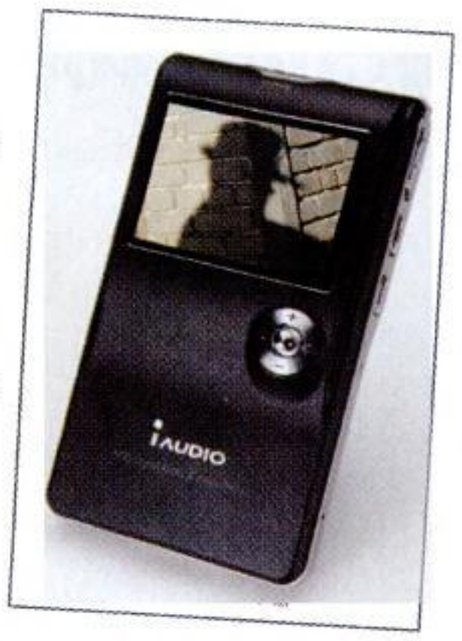
Cowon 20GB iAudio X5

Well, it's better than in-flight movies

We'd rather have Cowon's iAudio X5 portable video player than none at all, but that's hardly a ringing endorsement. Like many other PVPs, it's ultimately defeated by its refusal to play video encoded at high bit rates, even more finicky than Qool's Personal Infotainment Centre. That's a shame, because the screen is bright and colorful despite a relatively coarse dot-pitch that blurs detail. So plan on encoding your own video with the clunky bundled software, and don't count on the iAudio X5 to play much of what you download off the Internet.

SPECS

FORMATS	Xvid video; MP3, WMA, FLAC, and WAV audio
BATTERY LIFE	3:44 (hours:minutes)
WEIGHT	5.1 ounces
DIMENSIONS	4.1 x 2.4 x .6 inches
SCREEN	2.25-inch LCD



The iAudio X5 is picky with video files. You're picky with portable video players. Guess who loses?

It's got an FM tuner, can record audio from analog sources, and surprisingly supports lossless FLAC audio, but surely by now your attention has wandered.

COWON IAUDIO X5 — **3**

$300, www.cowonamerica.com

MSI MEGA 588

At last, features we'll actually use!

The words "portable" and "video" don't go together in many folks' heads—typically, the more portable the device, the smaller the screen. But MSI's MEGA 588 strikes a nice balance between a pocketable player and a screen that's better than what you get with your coach ticket. The screen has a somewhat coarse dot-pitch, but it won't obscure too much detail, and file support is second only to the PQI's mPack 600 (reviewed July 2005) in playing our stash of downloaded videos.

In addition to good video quality, the MEGA 588 sports four awesome features that stand out in the roundup. It's got the easiest-to-use transcoding software of the roundup, which will convert incompatible media files into Divx video or WMA audio formatted to the player's specs. It supports USB-To-Go, which allows you to transfer files from another USB storage device without a PC intermediary. There's an SD slot from which you can view photos and videos directly from your SD card. And it's the only player that *exceeded* its rated battery life by more than an hour!

SPECS

FORMATS	Divx (not Divx 6), Xvid, WMV video; MP3, WMA, WAV audio
BATTERY LIFE	6:04 (hours:minutes)
WEIGHT	6.8 ounces
DIMENSIONS	5 x 3 x 1 inches
SCREEN	3.5-inch LCD

There's a ton of pleasant surprises in MSI's MEGA 588, including easy-to-use software, an SD card slot, and enough battery life for a miniseries.

MSI MEGA 588 — **8**

$350, www.msicomputer.com

Apex Digital E2Go MP-6500

I scream, you scream, we all scream for a nice screen

The paperback book–size player boasts a luxurious 6.5-inch screen, but unlike the impressive-looking AV700 from Archos, the E2Go MP-6500 makes the most of its real estate with a resolution of 720x480 (the same as commercial DVDs). The only downside is that poorly encoded or low-resolution videos look atrocious on a screen that's so sharp it might be dangerous.

The MP-6500 is far more tolerant of videos recorded at high bit rates, and in addition to MPEG-4 formats such as Divx, Xvid, and WMV, it also supports QuickTime. It's also capable of recording from analog sources, but only a single recording can be scheduled, which is extremely primitive compared with the Archos family of PVPs.

The MP-6500 offers, by far, the loveliest image quality in a PVP we've ever seen. In fact, the viewing angle is so wide and the quality of the built-in speakers is so good that you could easily prop it up on its kickstand and take in *War of the Worlds* with a couple of co-workers in your cubicle.

SPECS

FORMATS	Divx (not Divx 6), Xvid, WMV video; MP3, WMA, WAV audio
BATTERY LIFE	4:12 (hours:minutes)
WEIGHT	23.1 ounces
DIMENSIONS	5 x 4 x 1 inches
SCREEN	6.5-inch LCD

The Apex Digital E2Go MP-6500 has a name almost as big as its absolutely stunning screen. Go ahead, lick it!

APEX DIGITAL E2GO MP-6500 — **9**

$700, www.apexdigitalinc.com

Don't Forget the Trimmings

There are hundreds of digital-media accessories luring unsuspecting buyers to their doom. Here are five tempting upgrades for your player, and one to watch out for!

OTTERBOX

The waterproof OtterBox squeezes more thrills from your player by letting you take it places where it might otherwise be exposed to water, sand, or tear gas. The larger models can also protect your cellphone and Nicorette gum.

OTTERBOX **8**

$50 for iPod Photo model, other cases from $11.50 up, www.otterbox.com

APPLE IPOD PHOTO CAMERA CONNECTOR

Our guess is that lots of photographers have iPods. And those photographers fill up the storage capacity of their cameras and memory cards very quickly. And they'd love to use their iPod to offload and review their photos. Shutterbugs, your day has come.

PHOTO CAMERA CONNECTOR **9**

$30, www.ipod.com (check website for camera compatibility)

SOLITUDE NOISE-CANCELING HEADPHONES

Solitude headphones live up to their name, thanks to large, comfy earcups and active noise-canceling technology. The phones monitor background noise and then generate reverse sine waves to wipe it out. Unfortunately, they're much less effective at producing the lush audio we demand from headphones in this price range.

SOLITUDE HEADPHONES **7**

$200, www.solitudeheadsets.com

SHURE E4C EARBUDS

The easiest way to get the most out of your digital audio or video player is by swapping out the crappy earbuds for Shure's E4c earbusters. Are they expensive? Well, yeah, but the luscious sound is worth every cent. Plus, we've noticed we play music at a softer volume when listening with the E4c—so maybe your insurance will pay for them.

E4C EARBUDS **9**

$300, www.shure.com

MAXIMUM PC KICKASS

CELLBOOST VALUE PACK FOR IPOD

When your iPod's battery poops out, you can curl up into a fetal position and dry heave, or you can snap on Cellboost's Rechargeable Battery Pack and avoid the embarrassing scenario. We got a little more than nine hours from a single charge, and if that's not enough for you in between pit stops, you even get a disposable, one-time-use battery charger.

CELLBOOST BATTERY PACK **7**

$80, www.cellboost.com

LOGITECH MM28 PORTABLE SPEAKERS

The mm28's clamshell design looks cool, but the unit is so top-heavy that a breath of air can send it tumbling ass over teakettle. And as much as we dig the NXT flat-panel speaker technology at the heart of this system, it comes off sounding like castrati without a subwoofer—there's just no "there" there.

LOGITECH MM28 SPEAKERS **3**

$80, www.logitech.com

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AMD Sempron™ Combos

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Audio/Video/LAN/USB/SATA	Video/LAN/USB/SATA	Audio/Gb-LAN/USB/SATA	SATA/Gb-LAN/USB/IEEE
AMD Sempron™ processor 2800+	AMD Sempron™ processor 3100+	AMD Sempron™ processor 3300+	AMD Sempron™ processor 3400+
Only $145	Only $165	Only $189	Only $239

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All Combos have 6 month standard Monarch warranty (1, 2 and 3 year Monarch warranty options available)

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nForce4/Audio/Video/LAN	Audio/SATA/USB	nForce4 SLI Audio/GB-LAN IEEE-1394a/PCI-E/SATA3G	nForce4 Audio/Gb-LAN
AMD Athlon™ 64 processor 3000+	AMD Athlon™ 64 processor 3500+	AMD Athlon™ 64 processor 4000+	AMD Athlon™ 64 processor FX-57
Only $209	Only $319	Only $579	Only $1225

AMD Athlon™ 64 - Industry-leading performance today; ready for tomorrow's 64-bit software

AMD Athlon™ 64 X2 Combos

All Monarch Combos Include cables, manuals and drivers
All Monarch Combos usually ship in only 2-3 business days!

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AMD Athlon™ 64 X2 processor 3800+	AMD Athlon™ 64 X2 processor 4400+	AMD Athlon™ 64 processor 4600+	AMD Athlon™ 64 X2 processor 4800+
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The AMD Athlon™ X2 dual-core processor enables everyone to do more in less time by delivering exceptional multi-tasking capabilities and increased performance on digital media.

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DFI K8M800-MLVF K8M800
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Starting @ $235

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w/430W PS
Abit KV8 PRO Motherboard
AMD Sempron™ processor 3300+
Starting @ $299

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w/300W PS
Gigabyte GA-K8VT890-9 Motherboard
AMD Athlon™ 64 processor 3000+
Starting @ $275

Antec Titan 550 E-ATX Tower
w/550W PS
MSI K8N Neo4 SLI Motherboard
AMD Athlon™ 64 processor 4000+
Starting @ $675

Antec Sonata II Piano Black
Mid-Tower w/450W PS
Asus A8N-E nForce4
AMD Athlon™ 64 X2 processor 3800+
Starting @ $559

Lian-Li PC-V1000A Plus
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AMD Athlon™ 64 X2 processor 4600+
Starting @ $1105

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DFI K8M800-MLVF K8M800
AMD Sempron™ processor 3100+
Starting @ $249

Antec Plusview II Tower
w/Window w/485W PS
Abit K8V PRO Motherboard
AMD Sempron™ processor 3400+
Starting @ $389

Antec SLK3700-BQE Black Quiet
w/350W PS
ABIT AV8 K8T800 Motherboard
AMD Athlon™ 64 processor 3700+
Starting @ $459

Thermaltake Shark Full Tower
(Silver) w/510W PS
DFI Lan Party UT nForce4 SLI-DR
AMD Athlon™ 64 processor FX-57
Starting @ $1529

Antec Performance TX1050B SOHO
w/500W PS
DFI Lan Party UT nF4-D
AMD Athlon™ 64 X2 processor 4200+
Starting @ $659

Thermaltake Shark Full Tower
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Abit Fatal1ty AN8 SLi nForce4
AMD Athlon™ 64 X2 processor 4800+
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Monarch Barebones include: case, motherboard, CPU w/fan, and Set-up and testing by AMD Certified Technicians - All for only $18.00! - Usually ships in ONLY 3-6 business days!

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AMD Athlon™ 64 3800+ (939) $282.00
AMD Athlon™ 64 4000+ (939) $334.00
AMD Athlon™ 64 FX-55 (939) $811.00
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AMD Athlon™ 64 X2 3800+ $322.00
AMD Athlon™ 64 X2 4200+ $400.00
AMD Athlon™ 64 X2 4400+ $497.00
AMD Athlon™ 64 X2 4600+ $630.00
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TC510 Express/SLI
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ATI (Connect3D)
Radeon X1800
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AVIVO/Dual-DVI (OEM)
$439.00

150175
Western Digital 320GB
SATA 8MB Cache 7200RPM
(WD3200JD)
$225.00

100844
Thermaltake
Tai-Chi Tower w/No PS
(VB5000SNA)
$379.00

190706
ATI (Original)
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SAPPHIRE

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AVAILABLE COMPONENTS:
Choice of Case and Power Supply
Choice of name-brand Motherboard
Choice of AMD Athlon™ 64/FX/X2
- includes heatsink and fan
Choice of name-brand memory
Up to 3 name-brand Hard Drives,with optional RAID setup (1 or 0)
Up to 2 name-brand Optical Drives from CD-ROM upto Dual-Layer DVD Writes
Choice of Floppy Drive
Choice of Sapphire ATI PCI-E graphics
Choice of name-brand sound card
Network options from modem to wireless
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Ask for Part #: 90836
SELECTED COMPONENTS:
Thermaltake VB1430BWS Soprano Case w/430W Power Supply
ABIT AV8 K8T800 Motherboard
Onboard Audio, Video, SATA, LAN
AMD Athlon™ 64 3000+ 512K (939)
- Includes AMD Certified heatsink
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- includes AMD Certified heatsink
1 GB (2 pcs 512) DDR (400) PC-3200 Corsair (TWINX1024-3200XL)
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NEC ND-3540A 16X Dual Layer DVD±RW
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AMD Athlon™ 64 processor FX-57
Zalman CNPS7000B-AlCu Silent CPU Cooling Kit
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2 x Western Digital Caviar SE 250 GB SATAII 16MB Cache 7200 RPM (WD2500KS) w/RAID 0
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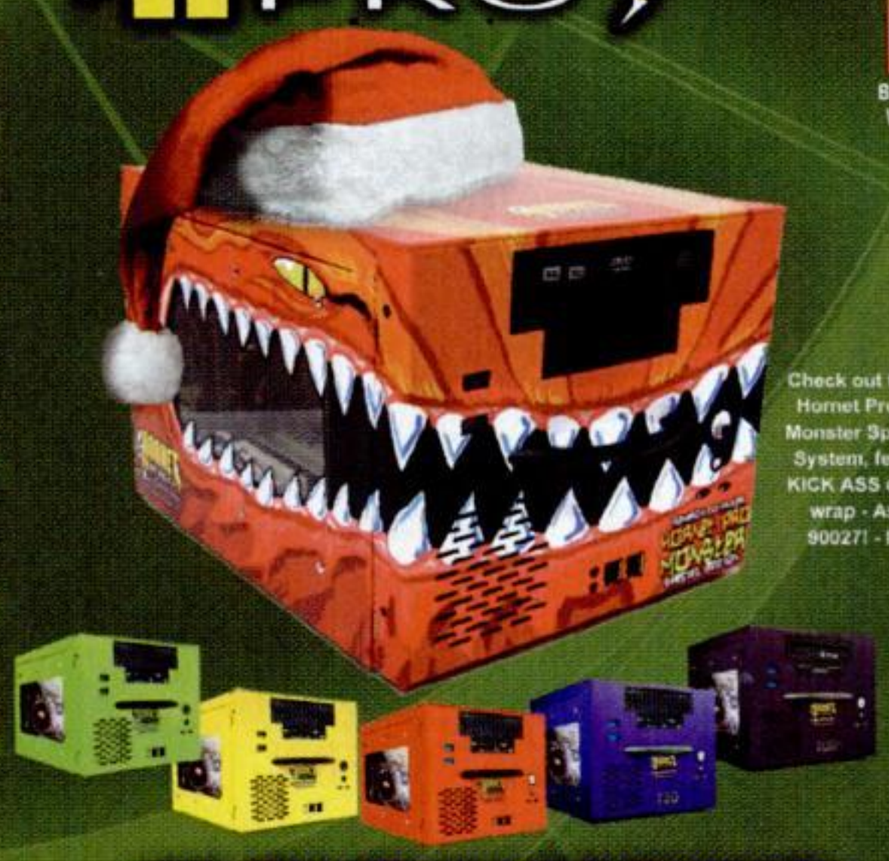

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Gigabyte GA-K8VM800M MB
AMD Sempron™ processor 2600+
Starting @ $325

Monarch Hornet Pro u-ATX (Black)
w/Topower TOP350FX ATX 12V 350W Power Supply
Asus K8S-MX Motherboard
AMD Sempron™ processor 3400+
Starting @ $459

Selected Athlon™ 64/FX/X2 Barebones!
See website for complete selections available

Monarch Hornet Pro u-ATX (Black)
w/Enermax EG285SX-VB(W)SFMA ATX 12V 270W
WinFast NF4K8MC-RS nForce 4
AMD Athlon™ 64 processor 3000+
Starting @ $469

Monarch Hornet Pro u-ATX (Black)
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WinFast NF4K8MC-ERS nForce 4 MB
AMD Athlon™ 64 X2 processor 4400+
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With ACS3 PCI-E
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Choice of AMD Athlon™ 64/FX/X2
- includes heatsink and fan
Choice of name-brand memory
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Up to 2 name-brand Optical Drives from CD-ROM upto Dual-Layer DVD Writes
Choice of Floppy Drive
EVGA GeForce 6600 LE 256MB DDR/PCI-E/TV-Out/DVI
Choice of name-brand sound card
Network options from modem to wireless
Choice of OS including Microsoft Windows XP Home, Professional, and Media Center
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Full line of peripherals and accessories
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SELECTED COMPONENTS:
Thermaltake VB1430BWS Soprano Mid Tower Case w/Window w/430W Power Supply (Black)
DFI Lan Party UT nForce4 SLI-DR Audio, GB-LAN, IEEE, USB, SATA w/RAID, DDR-400, ATX
AMD Athlon™ 64 3500+ 512K 90nm (939)
AMD Certified Heat Sink Fan
1 GB (2 pcs 512) DDR (400) PC-3200 OCZ
Western Digital 80GB SATA 8MB Cache 7200 RPM (WD800JD)
NEC ND-3540A 16X Dual Layer DVD±RW
Mitsumi 1.44MB 3.5" Floppy Drive (Black)
EVGA GeForce 6600 GT 128MB DDR3 PCI-E/TV-Out/DVI
Microsoft Windows XP Home Edition w/SP2
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1 or 3 year warranties available
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Choice of AMD Athlon™ 64/FX/X2
- includes heatsink and fan
Choice of name-brand memory
Up to 3 name-brand Hard Drives,with optional RAID setup (1 or 0)
Up to 2 name-brand Optical Drives from CD-ROM upto Dual-Layer DVD Writes
Choice of Floppy Drive
EVGA GeForce 6600 256MB DDR PCI-E/HDTV-Out/DVI
Choice of name-brand sound card
Network options from modem to wireless
Choice of OS including Microsoft Windows XP Home, Professional, and Media Center
Industry Standard Upgradable
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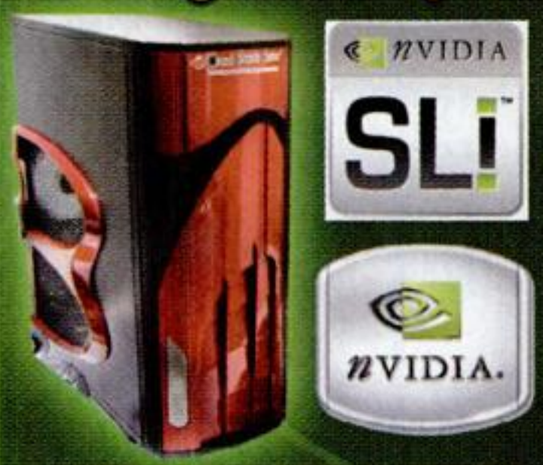
24/7 on-site service available

Starting @ ONLY **$577!**

Monarch Nemesis™ FX-57 7800 SLI Gaming Desktop



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Don't settle for less than the ABSOLUTE BEST!

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Thermaltake Shark Full Tower w/FirePearl Custom Paint
Enermax Noisetaker EG701AX-VE-SFMA ATX 2.0 w/SLI Support 600W PS
Asus A8N-SLI Premium NForce4 SLI
AMD Athlon™ 64 FX-57 CPU
2 GB (4 pcs 512MB) (TWINX1024-3200XLPRO) Corsair
1 x WD 74 GB SATA HDD
2 x WD 250 GB SATAII HDD w/RAID 0 Setup
Plextor PX-716SA DVD±RW
Mitsumi Floppy 7-in-1 Flash Reader
2 x EVGA Geforce 7800 GTX 256MB GDDR3 PCI-E, TV-Out, Dual-DVI
Creative Labs X-Fi Platinum
D-Link DWL-AG530 Tri-Mode Dualband Adapter
Microsoft Windows XP Pro (SP2)

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Half-Life 2, Livestrong Wristband, 128 MB SD Flash Card w/USB Reader
Along with the best parts, prices, service and support in the industry!

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MAXIMUMPC ON THE AUCTION BLOCK

We're selling two kick-ass Maximum PC-built and -blessed PCs on eBay to raise money for the Red Cross and the Salvation Army. You could be one of the lucky winners!

PHOTOGRAPHY BY SAMANTHA BERG

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The staff at *Maximum PC* watched in horror as first Hurricane Katrina, and then Hurricane Rita pummeled the Gulf coast, killing more than 1,000 people and destroying the homes, towns, and even cities of thousands more. Yet our hearts were warmed by the stories of the heroes who came to the aid of the hurricanes' victims. And more than ever, we recognized the invaluable contribution of charitable organizations, such as the Red Cross and Salvation Army.

We wanted to do something to help. So we embarked on a mission to raise money for these charities that save the day in disaster zones, by doing what we do best—building kick-ass PCs.

These are two of the fastest PCs money can buy. The gaming PC we assembled is lightning-fast, and the hand-crafted small formfactor rig combines the raw speed of an all-around performer with the silent running you can only achieve with a mobile processor.

We're going to auction these PCs on eBay, then donate 100 percent of the proceeds from the gaming rig to the Salvation Army and all the proceeds from the silent machine to the Red Cross. We'll post details of both auctions at MaximumPC.com on November 15.

Of course, we couldn't have built these rigs without the good will of vendors throughout the PC industry, who donated parts and time to help make these machines a reality. All of the participants are listed on page 60—their contributions are much appreciated!

Mind you, this is the first time ever that hand-built machines by *Maximum PC* editors have been available for sale. Each one was built with care, is completely unique, and bears the signature of every editor. This is your once-in-a-lifetime chance to own a piece of *Maximum PC*, and best of all, it's for a great cause! If you're not in the market for a new rig right now, consider the next couple of pages a roadmap to your next hardware upgrade.

Now, turn the page to see what we've cooked up!

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The Road Runner

Part 1970s-style MOPAR muscle car, part state-of-the-art computing power—you're looking at one lust-worthy gaming rig

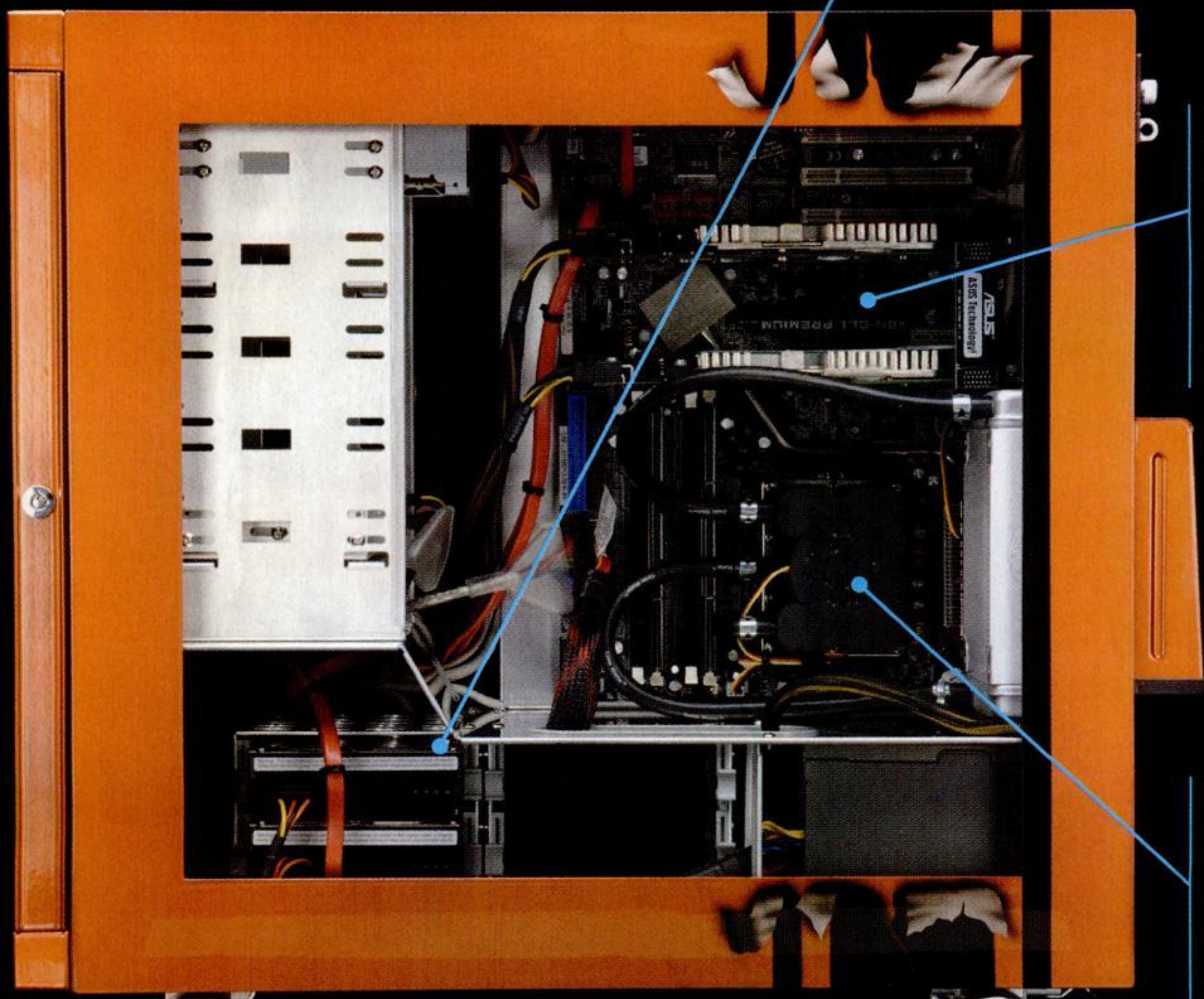
Take a good look at the Road Runner. Everything about this mid-tower screams asphalt-shredding speed—from the hot-rod metallic-orange paint job, to the dual BFG GeForce 7800 GTX boards running in SLI, to the water-cooled AMD Athlon 64 FX-57.

We chose the components for this rig with utmost care, having two goals in mind: the best possible performance, and a reasonably quiet decibel level. Mission accomplished. It just doesn't get any faster than the Athlon FX-57/GeForce 7800 GTX SLI pairing, and by using a Cooler Master Aquagate water cooler, we can manage the CPU's heat with a minimum of fan noise. A tasty terabyte of storage, courtesy of Hitachi's Deskstar 500GB hard drives in a RAID 0 array, rounds out the package nicely.

SPECS

	PART	DONOR
CPU	Athlon 64 FX-57	AMD
MOTHERBOARD	Asus A8N-SLI Premium	Asus
MEMORY	2GB Corsair PC3200	Corsair
VIDEOCARD	2 BFG Tech GeForce 7800 GTX OC in SLI	BFG Technologies
SOUNDCARD	Creative Labs Sound Blaster X-Fi XtremeMusic	Creative Labs
HARD DRIVES	2 Hitachi Deskstar 500GB	Hitachi Global Storage Technologies
OPTICAL DRIVE	Plextor PX-716SA	Plextor
CASE	Lian Li PCV-1100	Silverpcs.com
PAINT JOB	Road Runner	Smooth Creations
POWER SUPPLY	Antec 550 Neo HE	Antec
LCD MONITOR	Viewsonic VX924	Newegg.com and Viewsonic
SPEAKERS	Logitech Z-5500	Logitech
MOUSE	Logitech G5	Logitech
CPU COOLER	Cooler Master Aquagate	Cooler Master
OPERATING SYSTEM	Windows XP Pro	Microsoft

With two 500GB Hitachi Deskstars in a RAID 0 array, this rig delivers as much space as you'll need for all your games, movies, music, and photos with more than enough space left over for your future needs.



Without a pair of videocards this wouldn't be a kick-ass gaming rig. The two overclocked GeForce 7800 GTXs in SLI push the Road Runner's gaming performance into the stratosphere.

The Athlon FX-57 is uber-fast, but cooling it can make your system uber-loud. To combat the noise, we equipped our gaming rig with a Cooler Master Aquagate water cooler. It's cool and quiet!

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Baby Blue

A small footprint and a super-low noise profile mean you can put this rig anywhere—it's got the power to handle any task, even gaming

Whether you put this rig in your living room and connect it to your big-screen TV or regularly tote it between LAN parties and your home office, Baby Blue has you covered. Its Pentium M 770 processor runs at a whopping 2.13GHz, but sips so little power that it barely needs an active cooling solution. The eVGA GeForce 7800 GT board delivers awesome gaming performance, but also runs at easily managed temps.

There's nothing making a peep here. Even the storage—a Kick Ass award-winning Western Digital Caviar SE16 drive with 400GB of space—runs at barely a whisper. Indeed, when we first powered up the Baby B, we weren't even sure if it was on—it's that quiet!

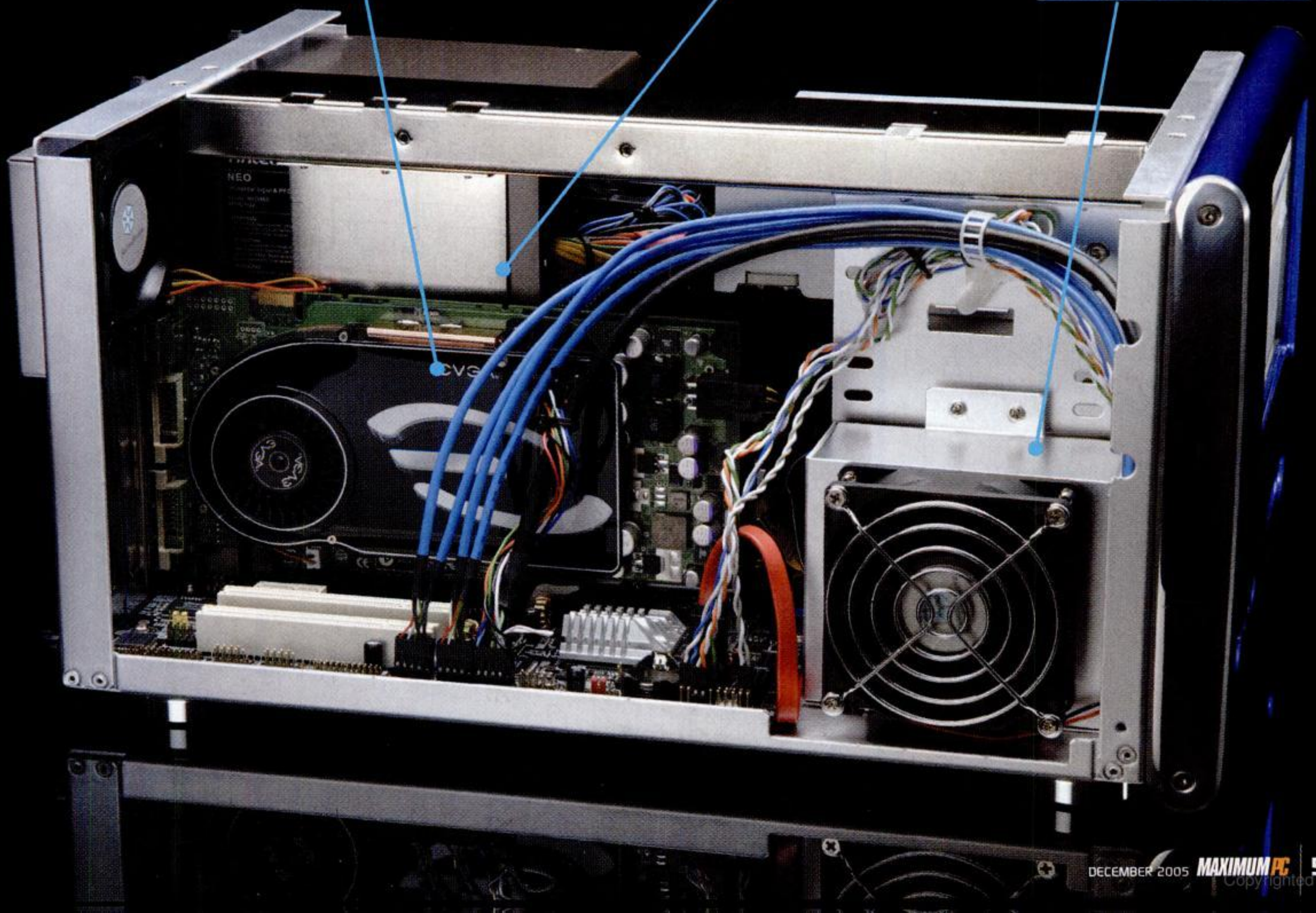
SPECS

	PART	DONOR
CPU	Intel Pentium M 770	Future Network USA
MOTHERBOARD	Aopen i915GMm-HFS	Aopen
MEMORY	2GB Crucial PC3200	Crucial
VIDEOCARD	eVGA e-GeForce 7800 GT	EVGA
HARD DRIVE	Western Digital Caviar SE16 400GB	Western Digital
OPTICAL DRIVE	Samsung TS-8552U	Samsung
CASE	Silverstone SG01	Silverstone
PAINT JOB	Baby Blue	Smooth Creations
POWER SUPPLY	Antec NeoPower 480	Antec
LCD MONITOR	Sceptre X9	Newegg.com and Sceptre
SPEAKERS	Logitech Z-5500	Logitech
MOUSE	Logitech G7	Logitech
OPERATING SYSTEM	Windows XP Pro	Microsoft

SLI is nice, but sometimes you want something a little quieter. If you love the power, but don't love the noise, eVGA's GeForce 7800 GT is just the ticket. This card delivers all-out performance but runs cool enough that you can spin down the fan.

We chose Antec's NeoPower 480 for Baby Blue's power supply. Its modular design, tidy braided cables, and quiet operation make this PSU perfectly suited for our powerful but silent system.

Behind this cooling shroud rests the 400GB Western Digital Caviar SE16. Its fairly standard specs—16MB cache and 7,200rpm spindle speed—disguise a performance monster. This drive beats the 10,000rpm Raptor in some benchmarks, while running virtually silent.



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Auction info will be online at http://www.maximumpc.com on November 15, 2005

Props to all the Donors

We couldn't have built these machines without the generosity of the companies listed below, who donated the parts we used to build these awe-inspiring rigs. Special thanks to Smooth Creations for donating two awesome paint jobs under our tight photography deadline. Thanks, everyone!

AMD (www.amd.com)

Antec (www.antec.com)

Aopen (www.aopen.com)

Asus (www.asus.com)

BFG Technologies (www.bfgtech.com)

CoolerMaster (www.coolermaster.com)

Corsair (www.corsair.com)

Crucial Technology (www.crucial.com)

Future Network USA (www.futurenetworkusa.com)

EVGA (www.evga.com)

Logitech (www.logitech.com)

Hitachi Global Storage Technologies (www.hgst.com)

Microsoft (www.microsoft.com)

Newegg (www.newegg.com)

Plextor (www.plextor.com)

Samsung (www.samsung.com)

Sceptre (www.sceptre.com)

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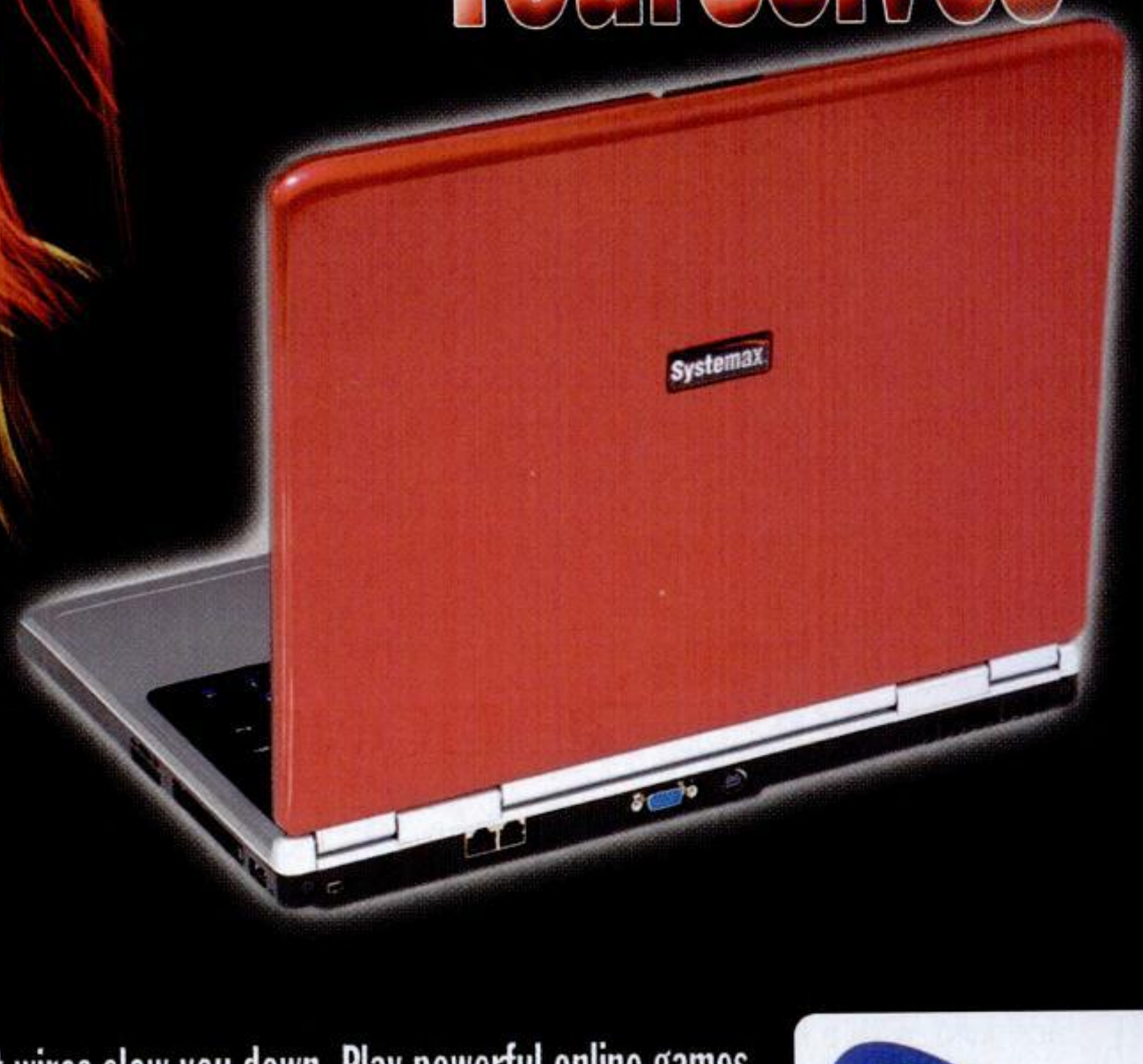

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Compress A DVD Using Divx 6!

It's not just a codec anymore… Maximum PC shows you how to make the most of new features in the new Divx Media file format!

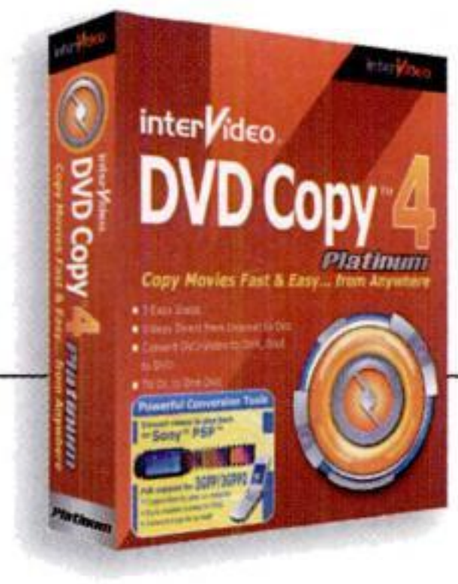
TIME 02:20 HOURS:MINUTES

Back when the entertainment industry was still trying to figure out what this *em-pee-three* business was all about, the Divx video compression codec was already becoming a de facto standard for "sharing" video on the Internet, and it remains popular today, despite challenges from freeware codecs like Xvid and OGG Video, as well as Microsoft's Windows Media 9. But Divx 6 is more than just a more efficient and higher-quality iteration of the Divx codec—it's now a container format, like AVI, which can wrap compressed video, menus, subtitles, and multiple audio streams into a single file. We'll show you how to take advantage of the codec's fancy new features and create a trimmed-down and compressed version of your DVD-Video that's almost identical to the original.

BY LOGAN **DECKER**

MATERIALS

- **DIVX CREATE BUNDLE**
  $20, www.divx.com
- **DIVX CREATE BUNDLE MPEG-2 PLUGIN**
  $10, upgrade through application
- **AC3 CODEC**
  Free, http://ac3filter.sourceforge.net
- **DVD BURNER**
- **OPTIONAL**
  Slysoft AnyDVD
  $40, www.slysoft.com
  InterVideo DVD Copy 4 Platinum
  $80, www.intervideo.com



1 Install the Necessary Applications and Codecs

Download and install the *Divx 6 Create Bundle* from the Divx website at **www.divx.com**. This package installs the Divx Pro codec, the *Divx Media Player* application, and *Divx Converter*, which lets you create Divx Media files by simply dragging and dropping files onto the *Converter* application. If you intend to convert VOB files from commercial DVDs, you'll also need the MPEG-2 plugin, which will be automatically activated on a trial basis when you drag a VOB file onto the converter.

The *Divx 6 Create Bundle* is a slick, stupid-simple application that lets you drag and drop video files for automatic batch conversion, including AVI files compressed with different codecs (as long as these codecs are already present on your system) and VOB files from DVDs. But it won't allow you to specify individual chapters or videos to compress or to cut out audio streams you don't need—in order to take advantage of Divx Media's secret candy stash, you'll need to download and install InterVideo's *DVD Copy 4*, the first application to officially support the Divx Media container format.

Finally, you'll need the appropriate codecs. If you can already view and hear your media in Windows, you've got

A reliable source for up-to-date audio and video codecs for your PC is www.divx-digest.com/software.

them, but you might also need to download the AC3 audio codec used in many DVD-Videos (grab it at **http://ac3filter.sourceforge.net**). Keep in mind that the *Divx 6 Create Bundle*, *DVD Copy 4,* and even the MPEG-2 plugin are all available in fully functional 15-day trial versions, so don't hesitate to give the next-generation Divx a chance!

2 Rip Your DVD

If you want to convert your DVD-Video to Divx Media—in order to stream movies from your Media Center PC, for example—you'll need to rip the contents to your hard drive with a DVD-ripping application, which is technically illegal. That's why freeware rippers such as *DVDDecryptor* and *SmartRipper* are being clubbed on the Internet like baby seals. You can still find them with some Googling effort, but make sure your antivirus auto-protection is activated, and check for spyware after installation.

Slysoft's *AnyDVD* (**www.slysoft.com**) takes a different approach than most rippers: It decrypts DVD-Video on the fly so the copy protection is rendered essentially invisible to you, and you can copy the VIDEO_TS folder, where the DVD content resides, by simply dragging it to your hard drive.

Don't bother with the AUDIO_TS folder or anything else you find on the disc—all the contents of the DVD-Video, including menus, video, and audio, are contained within the VIDEO_TS folder.

CAUTION!
One more time: Circumventing the encryption on commercial DVDs is illegal! If you don't like that, let your Senator, Representative, or legal guardian know.

3 Using the DIVX Converter Application

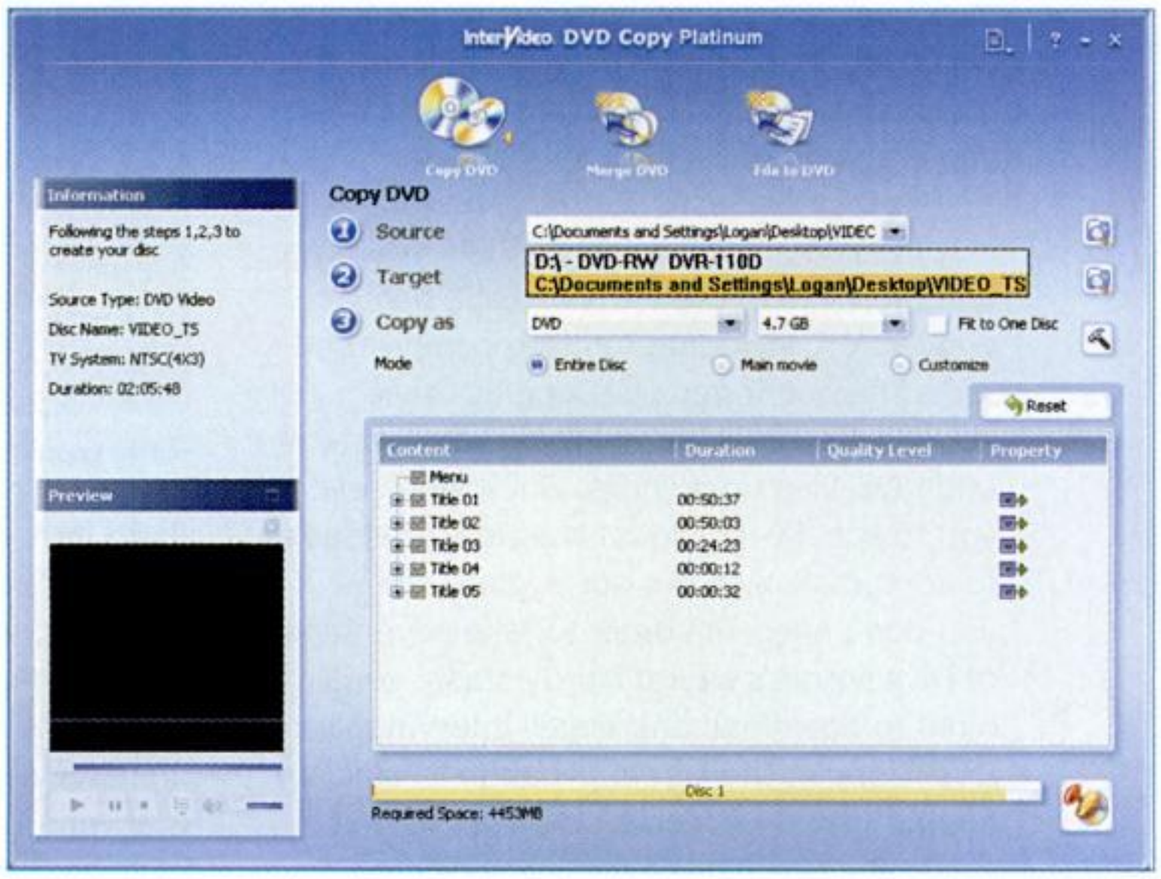
The easiest way to convert your media to Divx Media is to simply drop the files onto *Divx Converter* and select an encoding profile. Because not many portable devices support Divx 6 yet, we recommend the Home Theater profile, which encodes standard DVD resolution video (720x480) at a bit rate of 1250KB/s. If you drop a handful of media files onto *Converter*, it will allow you to encode them as individual files or create a single Divx Media file with an automatically generated menu.

It won't do this with VOB files—instead, it will simply create one file from all the consecutive VOBs. In order to take advantage of some of the more advanced features of Divx Media—including compression of an entire DVD with menus and all—we'll need to use InterVideo's *DVD Copy 4*.

***Divx Converter* offers drag-and-drop batch queuing and conversion for your media files.**

4 Select Your Source Files

DVD Copy 4 will not copy CSS-encrypted commercial DVDs, so we're going to assume you've already copied and decrypted the VIDEO_TS folder to your hard drive using *AnyDVD* or a similar app. Launch *DVD Copy 4* and begin the three-step conversion process with the Source menu. Click the file-browser button, navigate to the VIDEO_TS folder on your hard drive (or to your optical drive with an unencrypted DVD), and click OK to select it.



From the Source menu option, you can select either your optical drive or your media files—including VOB files ripped from DVDs.

5 Select Your Target Directory

Next, we'll tell *DVD Copy 4* where to output the results of our work. The application can write to a folder on your hard drive or burn directly to CD or DVD when it's done with compression. We intend to store our compressed video on an external hard drive, so we're going to select that drive using the file-browser button in the Target menu.

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Wireless Game Guide

The games you should be playing this holiday season

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gaming on a cellphone just moved up a gear

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TEXT SGG02 TO 386 (FUN)

TEXT SGG03 TO 386 (FUN)

TEXT SGG04 TO 386 (FUN)

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Project Director
Bill Kelchner
646-723-5409
bkelchner@futurenetworkusa.com

Project Editorial Director
Mojo Media
Joe Funk
630-434-8888
joe@mojo-media.com

mojo media

Project Art Director
OLo409
O. Arocena
203-783-1948
arocena@olo409.com

OLO409
AROCENA

FUTURE NETWORK USA
150 North Hill Drive, Suite 40,
Brisbane, CA 94005
www.futurenetworkusa.com

PRESIDENT Jonathan Simpson-Bint
VICE PRESIDENT/CFO Tom Valentino
VICE PRESIDENT/CIRCULATION Holly Klingel
GENERAL COUNSEL Charles Schug
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PUBLISHING DIRECTOR/TECHNOLOGY
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Non-executive Chairman Roger Parry
Chief Executive Greg Ingham
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Tel +44 1225 442244
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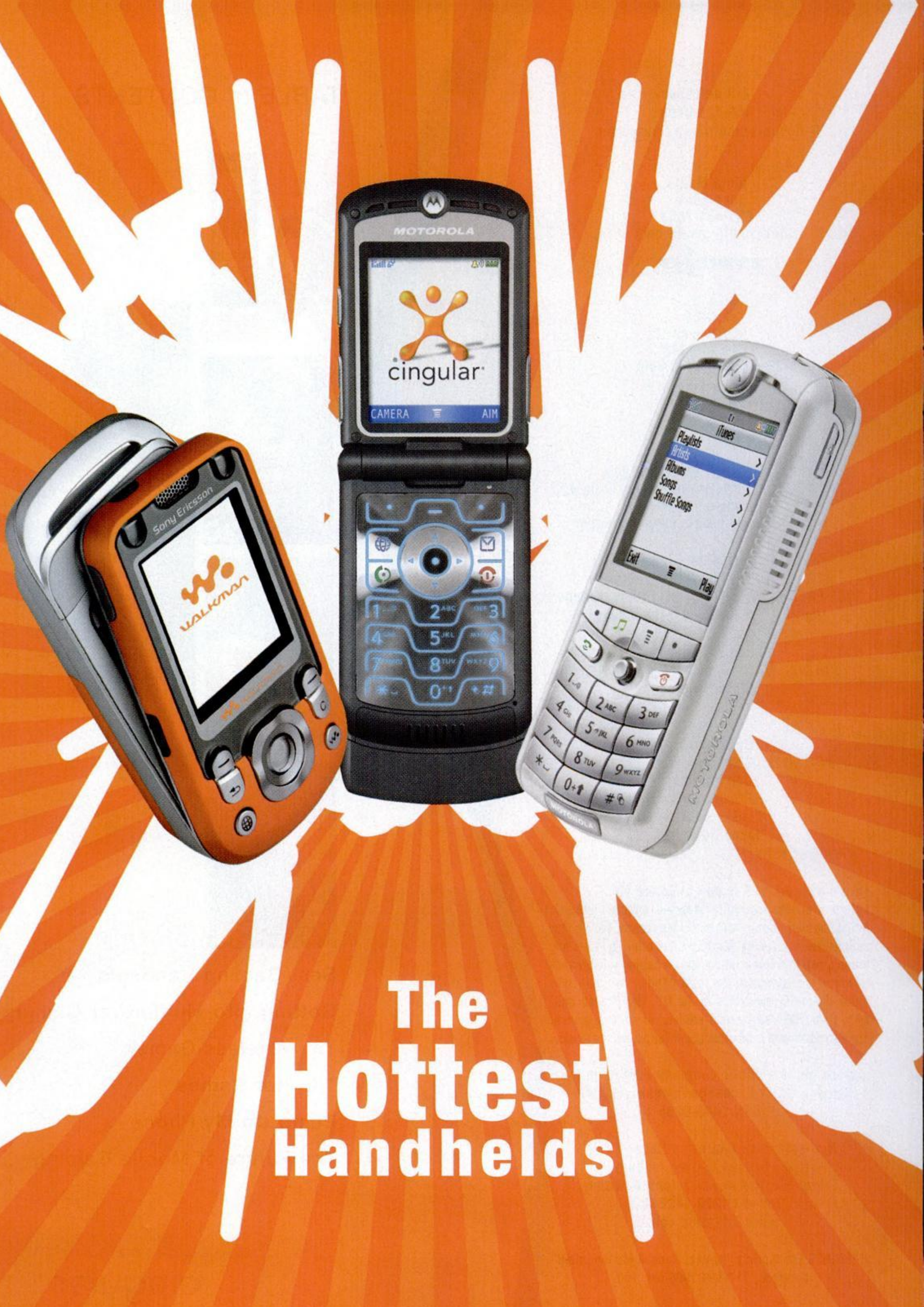

The Hottest Handhelds

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The Hottest Handhelds

Sony Ericsson Z520

The Z520 is a small clamshell with a clean-cut design and distinctive loop antenna. Cool features let you multi-task with speakerphone, "see" who's calling with Picture Caller ID and play 3D games. And that's just a start. With this phone, Bluetooth® technology allows you to connect the Z520 with all Bluetooth®-enabled devices; download and play a multiplayer game with other Z520 users; share and exchange images and video clips between your phone and computer. You can also take pics in low-light with the night-mode setting. And with one of our favorite features: with the clamshell closed, you can use the external display as a viewfinder to take self-portraits and buddy shots.

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The Hottest Handhelds

Samsung SGH-p777

This compact slider phone is great for games, music and multimedia, and can provide e-mail access and AIM and ICQ chat. With 100 MB of internal memory you can store up to an hour-and-a-half of music (via a USB cable) with room to spare for pictures and video. You can also unleash your inner-Spielberg with the camera on this phone: It is the first to take 352x288 resolution video clips with sound, which means you can play your clips back on TV.

Sony Ericsson W600

A "Swiss Army Knife" of cell phones, you can literally use the W600 open, closed, and angled. Our favorite thing about this fascinating little piece of hardware? The physical configurations allow this phone to actually look like device it is being used as. For example, if you are taking pictures and hold the phone sideways in front of you, it looks like a camera. If you flip it around to play games on the big and bright main screen, it looks like a mini gaming device. And if you can break away from all the fun stuff to make or take a phone call on this technical wonder, you won't look like you're holding a laptop to your head when you're on the call.

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THE BEST GAMES...

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TURBO21
TRIPEAKS
SIMS2
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TWPGA06

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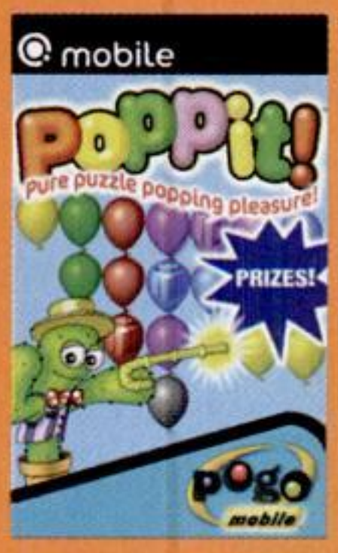
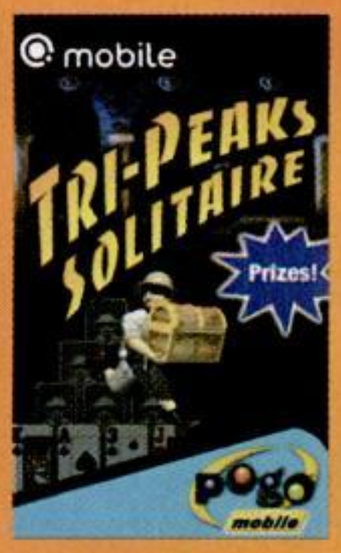


keyword: POPPIT

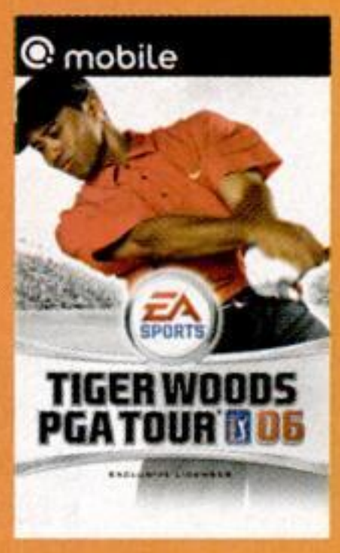


keyword: TRIPEAKS

keyword: TURBO21

keyword: SIMS2

keyword: FIFA06



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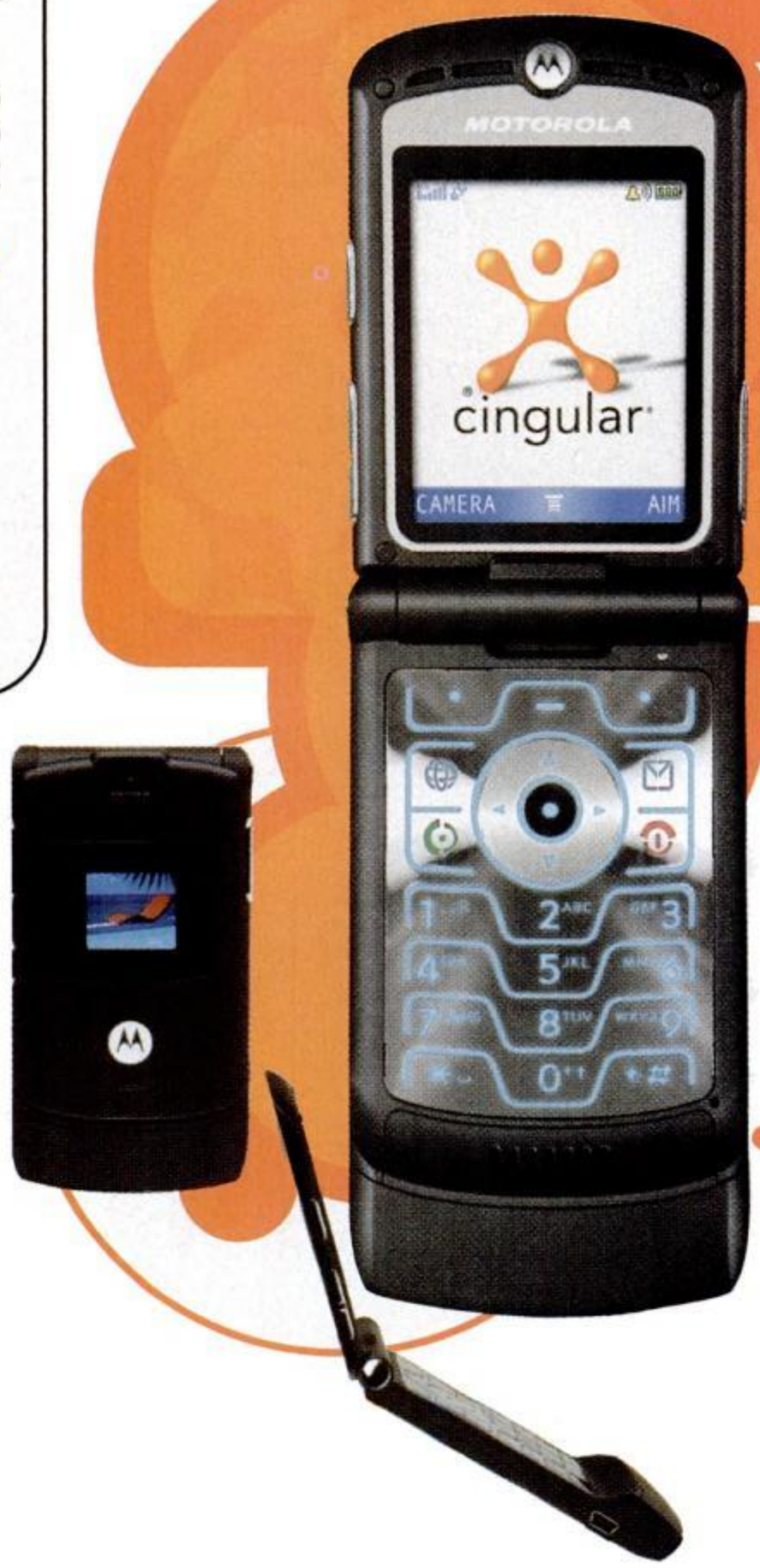
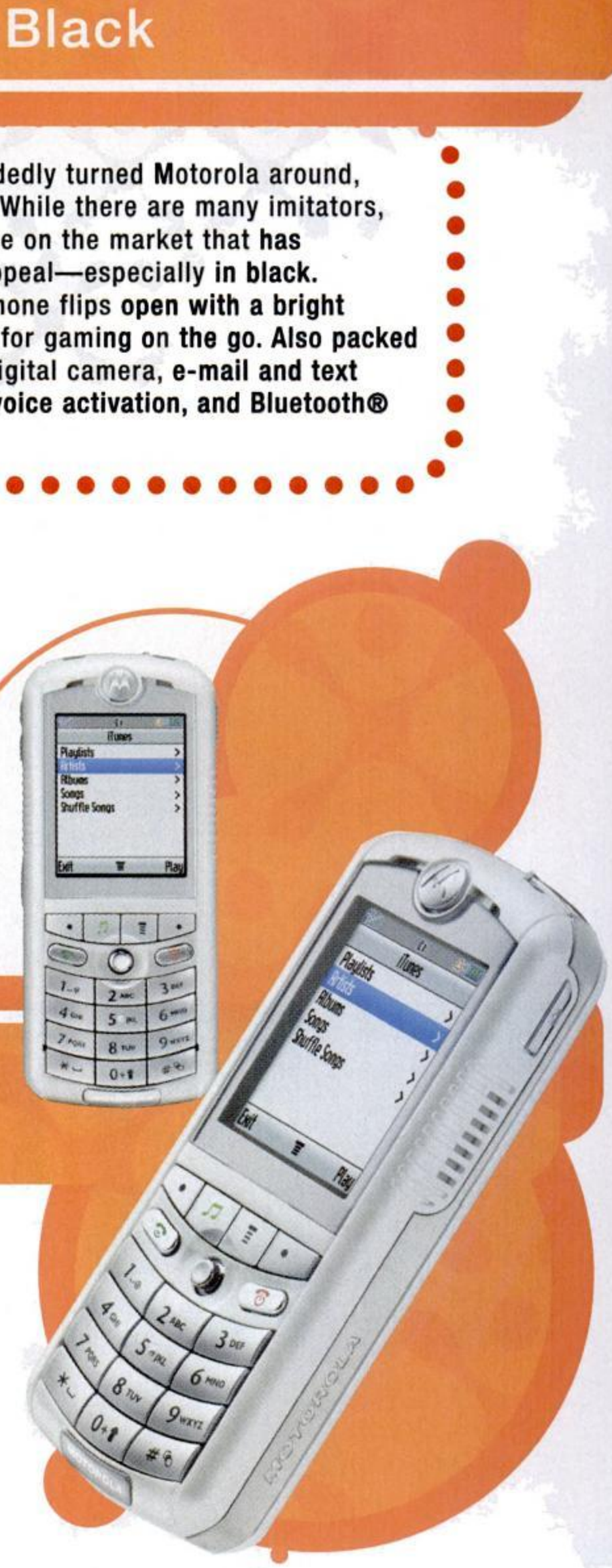


Motorola RAZR V3 Black

The RAZR single-handedly turned Motorola around, and for good reason. While there are many imitators, there's no other phone on the market that has this amount of sex appeal—especially in black. Incredibly thin, the phone flips open with a bright screen that's perfect for gaming on the go. Also packed into the device is a digital camera, e-mail and text support, quad band, voice activation, and Bluetooth® wireless support.



Motorola E1 ROKR

The world's first phone with iTunes, only from Cingular, is the fusion of mobile phones and music. The ROKR easily syncs with PCs and Macs using iTunes 5.0 to load up to 100 songs and allows you to take a slice of your music library anywhere you take your wireless phone. Needless to say, the polyphonic sound on this handset is outstanding. Other sweet features include an image composer, stereo speakers and rhythm lights, Bluetooth® technology, and of course, the ability to play the latest and greatest games.

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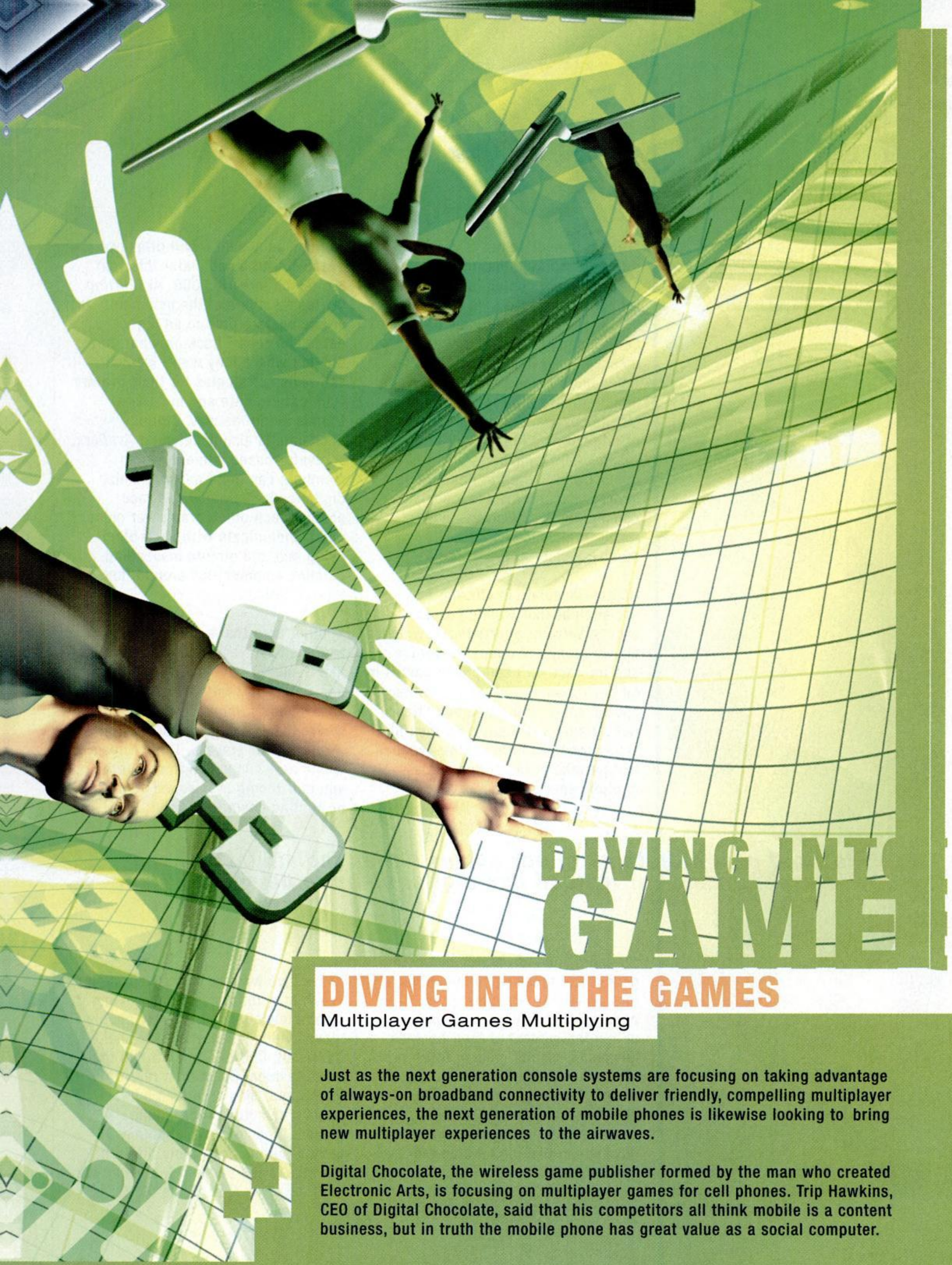

DIVING INTO THE GAMES

Multiplayer Games Multiplying

Just as the next generation console systems are focusing on taking advantage of always-on broadband connectivity to deliver friendly, compelling multiplayer experiences, the next generation of mobile phones is likewise looking to bring new multiplayer experiences to the airwaves.

Digital Chocolate, the wireless game publisher formed by the man who created Electronic Arts, is focusing on multiplayer games for cell phones. Trip Hawkins, CEO of Digital Chocolate, said that his competitors all think mobile is a content business, but in truth the mobile phone has great value as a social computer.

DIVING INTO THE GAMES

"Digital Chocolate has a very different strategy that uses entertainment content as the context for social contact," said Hawkins. "SMS is closer to our view of mobile-centric software, and today text messaging by itself generates 20 times more revenue than all the mobile games put together. Our Mobile League, that supports players of original mobile games like *Bubble Ducky*, *WordJong*, and *Johnny Crash*, is our first big step in this direction. Mobile League provides a social community that is always within reach from your mobile device."

Digital Chocolate is offering new social clubs like *Mobile League Sports Network Sports Picks*, which allows groups of people to gather and interact with cell phone games in an environment that blends fantasy sports, sports talk radio and "trash talk." Gamers will pay a $3 monthly subscription to form custom leagues and partake in the action across multiple sports.

"We want people to think of our games not as individual experiences, but instead like digital clubs to be shared."

TRIP HAWKINS

"These games are about connecting people and creating communities of players who are constantly engaged with friends and family within the context of their hobbies, advancing mobile gaming to a socially meaningful and modern form of entertainment," said Hawkins. "We want people to think of our games not as individual experiences, but instead like digital clubs to be shared."

The company said it will offer two avatar-based games later this year for launch in early 2006. *AvaFlirting* invites members of the community to create avatars that go on digital dates and report back on what they did and where they went. Members can revise strategies for their avatars from date to date and make new friends along the way. Digital Chocolate is also developing *AvaCars*, an avatar-based game in which members can build and customize digital cars. Members can race against each other, create car clubs, and communicate with each other using text and picture messaging, building communities around their love of cars.

Another area that's gaining steam is true mult-iplayer gaming. Companies like Gameloft have already launched games like *Asphalt: Urban GT* and *Tom Clancy's Ghost Recon: Jungle Storm* that provide true 3D gaming for up to four players. This brings a whole new dimension to competition, whether racing in licensed vehicles or hunting down terrorists.

"Xbox Live was the first 'live' gaming community for console gamers and it completely changed the way people played video games," said Michel Guillemot, CEO of Gameloft. "In that same fashion, Gameloft's real-time multiplayer also creates a live gaming community for mobile gamers. Though the technology behind both is drastically different, the idea is the same in the sense that both were the first for its platform."

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HUMILITY

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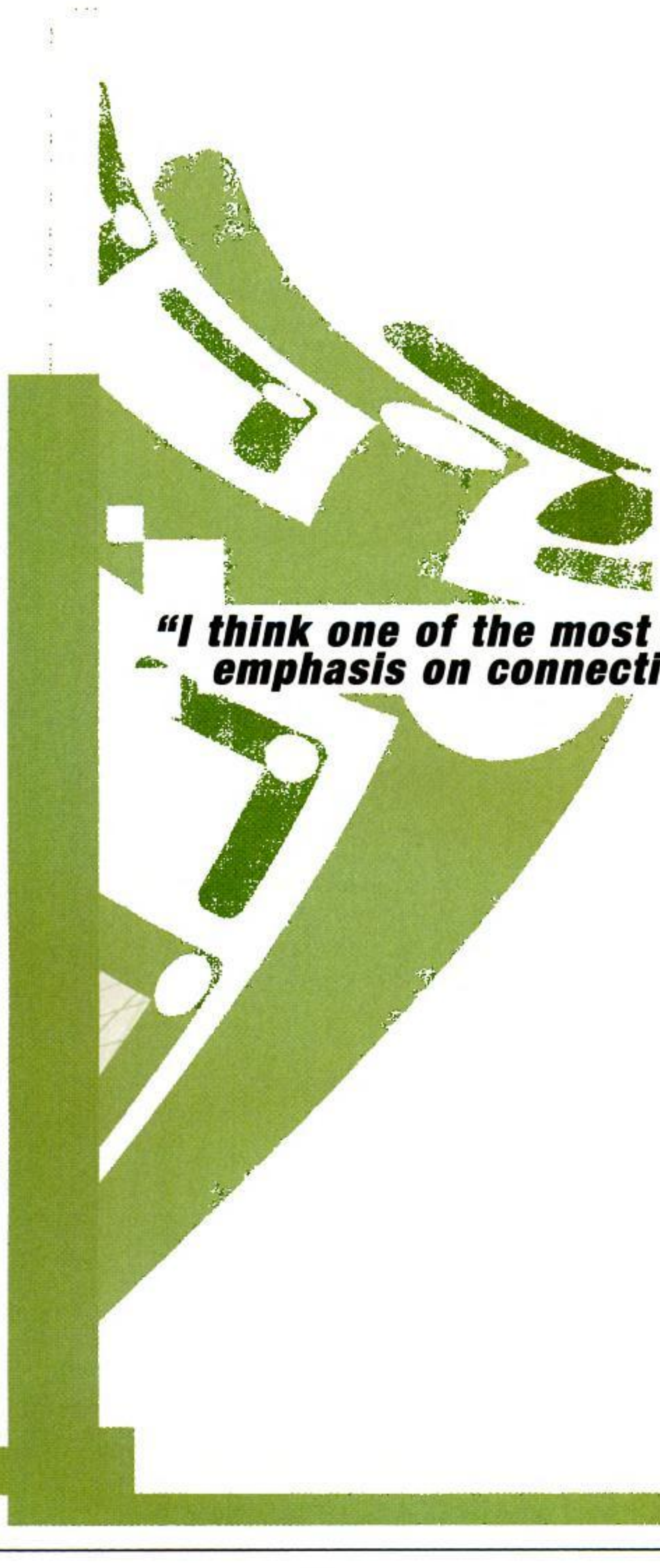
DIVING INTO THE GAMES



With Gameloft's multiplayer games, everything goes through the Gameloft server, so scores and names are all stored. There's also a "buddy list" option, which allows players to look for friends and other competitors. Other game publishers are expected to follow suit with multiplayer gaming over the coming years as gaming continues to gain steam.

"I think one of the most exciting trends will be an increased emphasis on connectivity: multiplayer, streaming content, community, etc.," said Andrew Stein, senior manager, games and applications for Cingular Wireless. "Mobile phones are the only portable gaming devices that are 100% connected all the time that they are in-network. Games are going to start taking advantage of this. Upcoming games will start to link the mobile experience with existing communities on the PC and there are some really fun things that will then be possible."

And as new technology opens more doors, these types of experiences will broaden across many game makers and developers.

"I think one of the most exciting trends will be an increased emphasis on connectivity: multiplayer, streaming content, community, etc.,"

ANDREW STEIN

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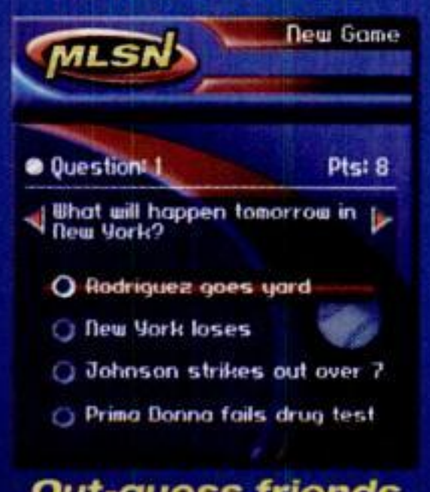

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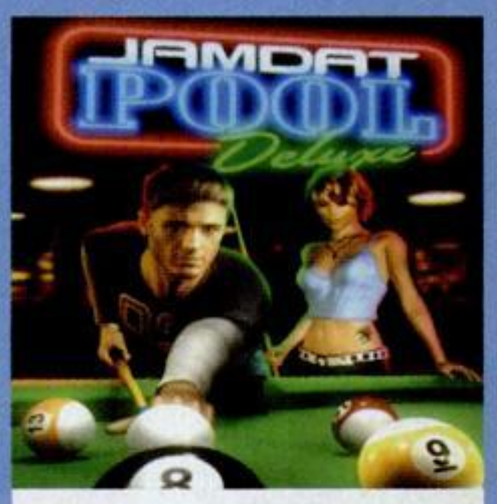
G324



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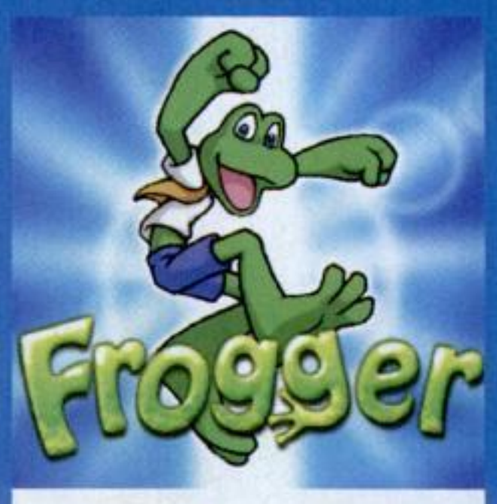

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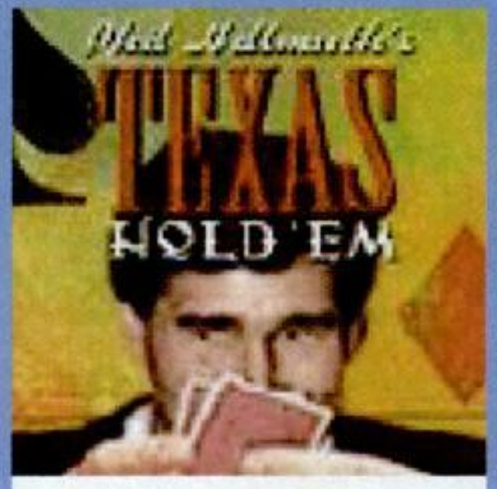

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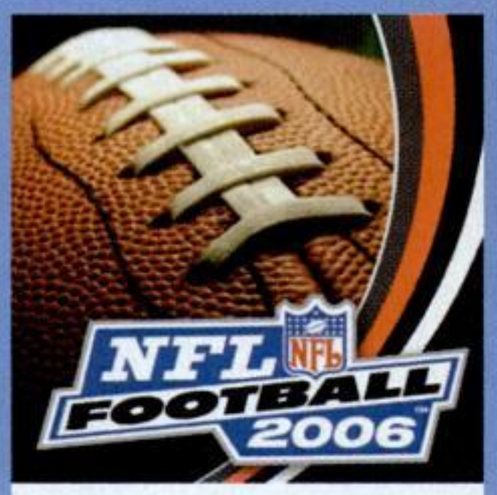

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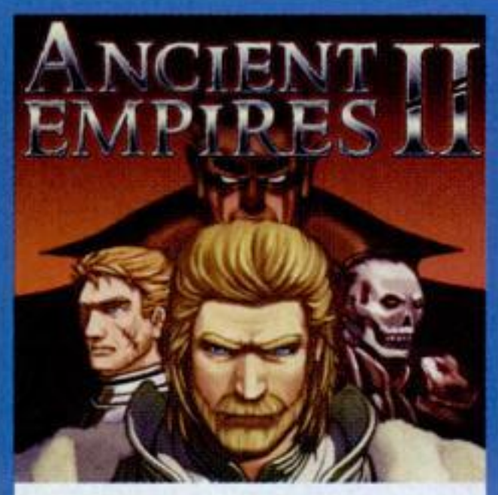

G314

G318

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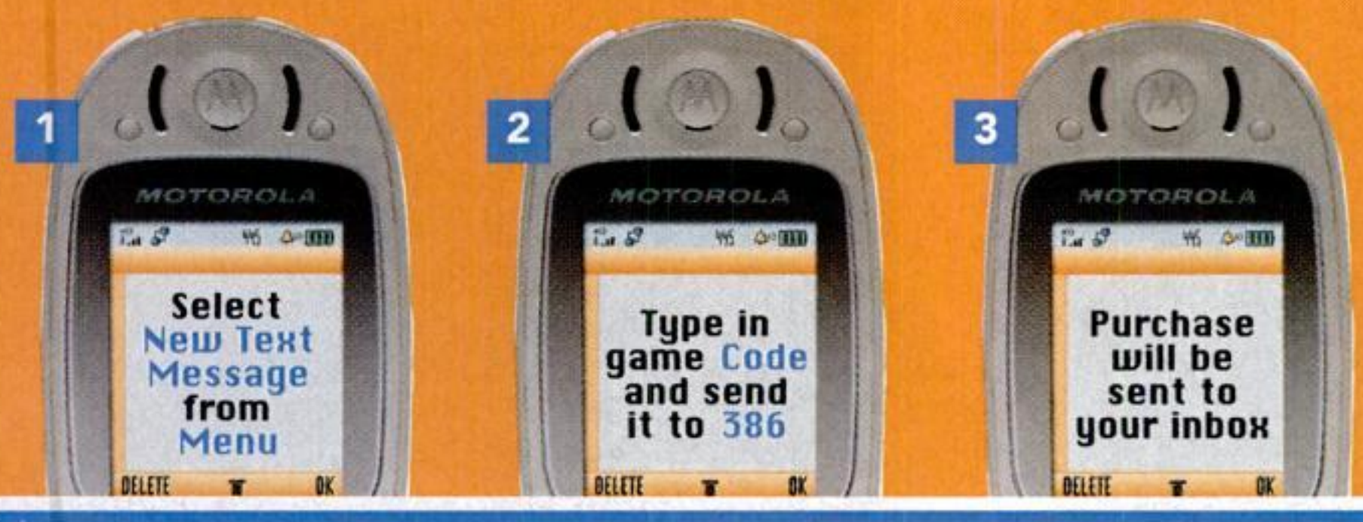

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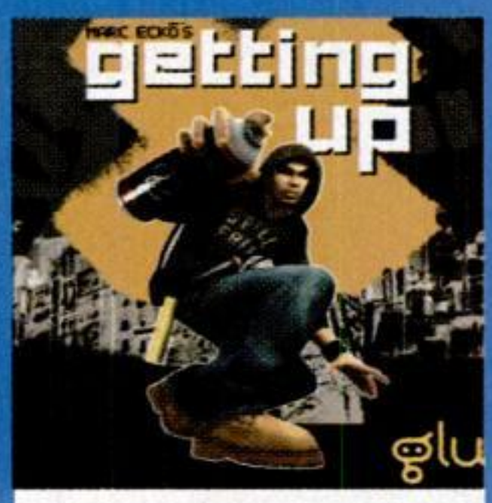
G304

G307

G321



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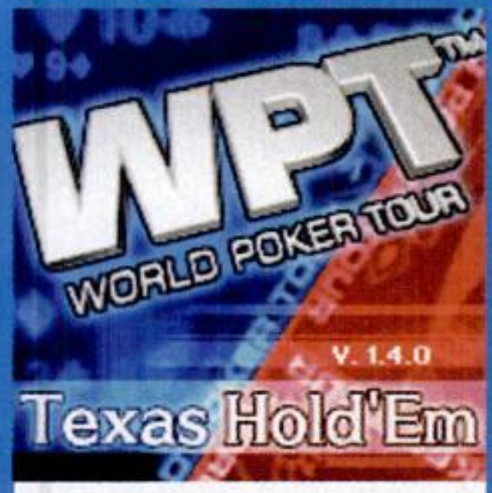

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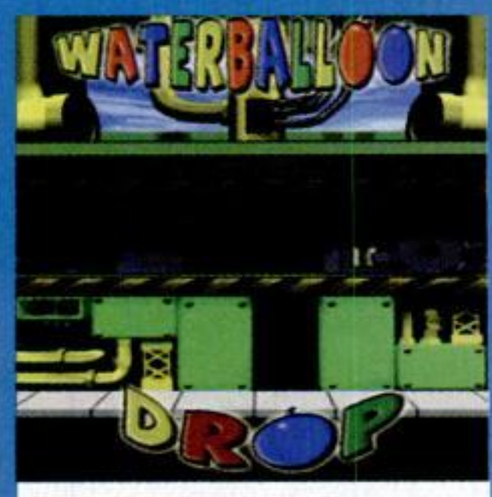

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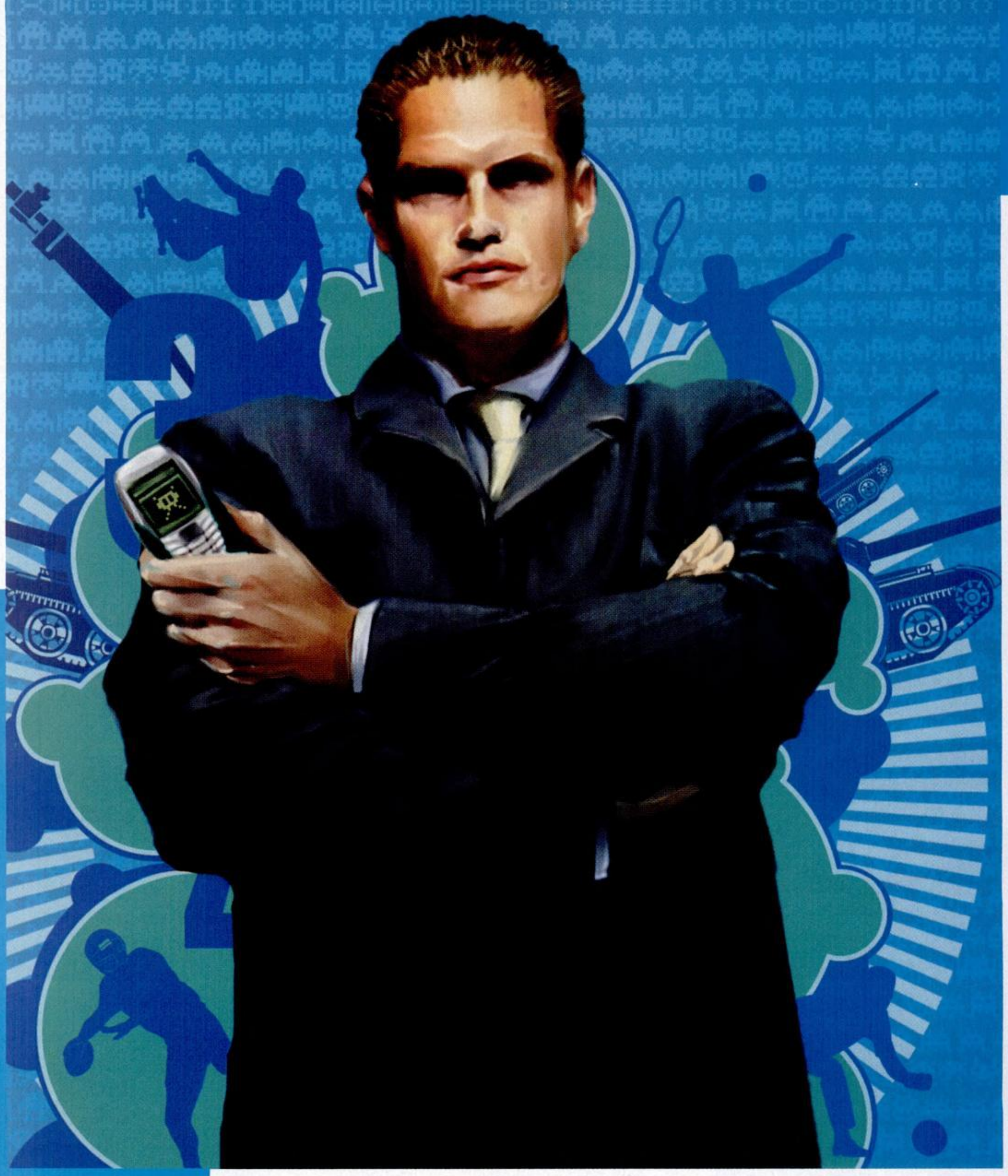

The Wireless Gamer

The Face of a New Generation

While Sony, Microsoft and Nintendo battle it out on current and next generation consoles, the wireless games business has quickly and quietly grown into big business. In the U.S. phones that play games have grown from a zero base two years ago to 50 million in use today.

That number is expected to reach 200 million in the next few

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HOOYAH!

SOCOM

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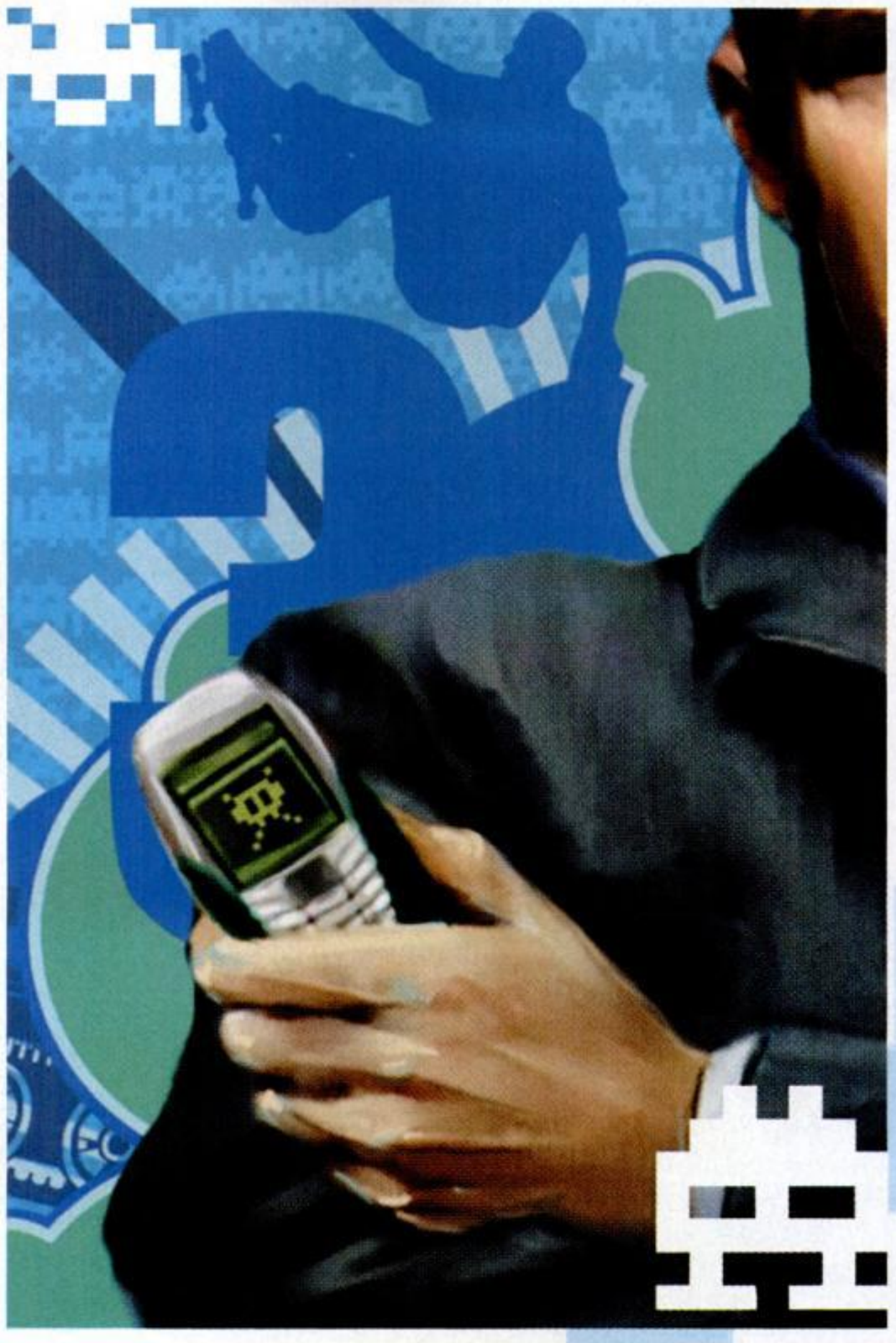
The Wireless Gamer

The Face of a New Generation

years, and there's dramatic growth in game-playing phones—50 percent over the past year alone. JAMDAT, which has a number of games including crossover hits like Tetris and JAMDAT Bowling available on Cingular, forecast sales in 2005 of $80 million compared to $36 million in 2004.



The niche has become so hot, even Hollywood is getting in on the act. "Hollywood studio and TV executives are recognizing that mobile entertainment is a key element in the overall promotional program of a film or TV show because it reaches not only the current fan base, but also extends the awareness to consumers who may not be familiar with the show," said Michel Guillemot, president, Gameloft, which has games based on *The War of the Worlds*, *Peter Jackson's King Kong* and "The O.C."

"Developing a game to coincide with the film or show is a smart move because unlike ringtones, wallpaper and logos, games allows you to relive the show or film. When you couple a hit film or hit TV show with a video game, it provides an automatic familiarity with the brand and game."

What is interesting about the growth spurt, is that the mushrooming legion of cell phone gamers don't necessarily mirror the demographics of traditional console gamers: There are a lot more females using their phones as entertainment devices. And the content has become more diverse, much more rapidly, than it did on console games, where the early generations of games consisted of mostly primitive shooting and driving titles targeting young males.

Console gaming also necessitated learning the nuances of strange input devices like joysticks and paddles, whereas with cell phones, most everyone who owns one is familiar with the button locations and inputs on their handset.

The audience for wireless gamers is much broader than the 18- to 34-year old male demographic that drives the console market. A recent survey of 8,500 teens and adults by The NPD Group, "Mobile Games: Who's Playing?" confirmed the theory that a lot more diverse group of people are playing mobile games. Casual games are the most popular category for wireless games, as card, board and puzzle games beat out traditional console titles for the top spot. Kids between the ages of 13 and 17 (60 percent) are nearly three times as likely as adults (23 percent) to be mobile gamers. Compared to typical wireless subscribers, mobile gamers are twice as likely to be African-American, Hispanic or Asian.

"Different people look for different things in games, and the beauty of mobile games is that we've got all kinds of games for all kinds of people," said Andrew Stein, senior manager, games and applications, Cingular Wireless. "Folks who love playing casual web games like *Bejeweled* or *Zuma* on the web can find mobile versions. Card sharks can play *World Poker Tour: Texas Hold'Em*."

Stein said Cingular sees very balanced sales in its sports, action/adventure, puzzle and card, and board game categories. Word, trivia and retro categories are starting to catch up fast, thanks to the releases of Konami *Frogger* and Namco *Pac-Man*.

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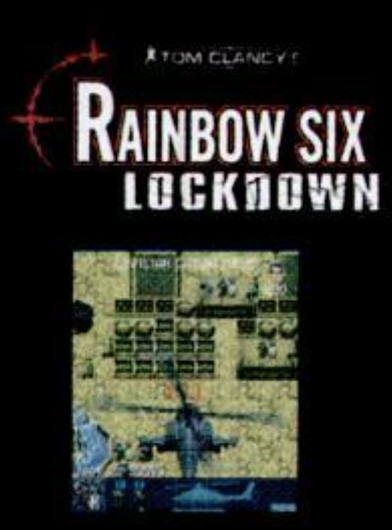

KEYWORD: RSL

KEYWORD: BOWL

KEYWORD: KONG

KEYWORD: COMBAT

KEYWORD: CARD

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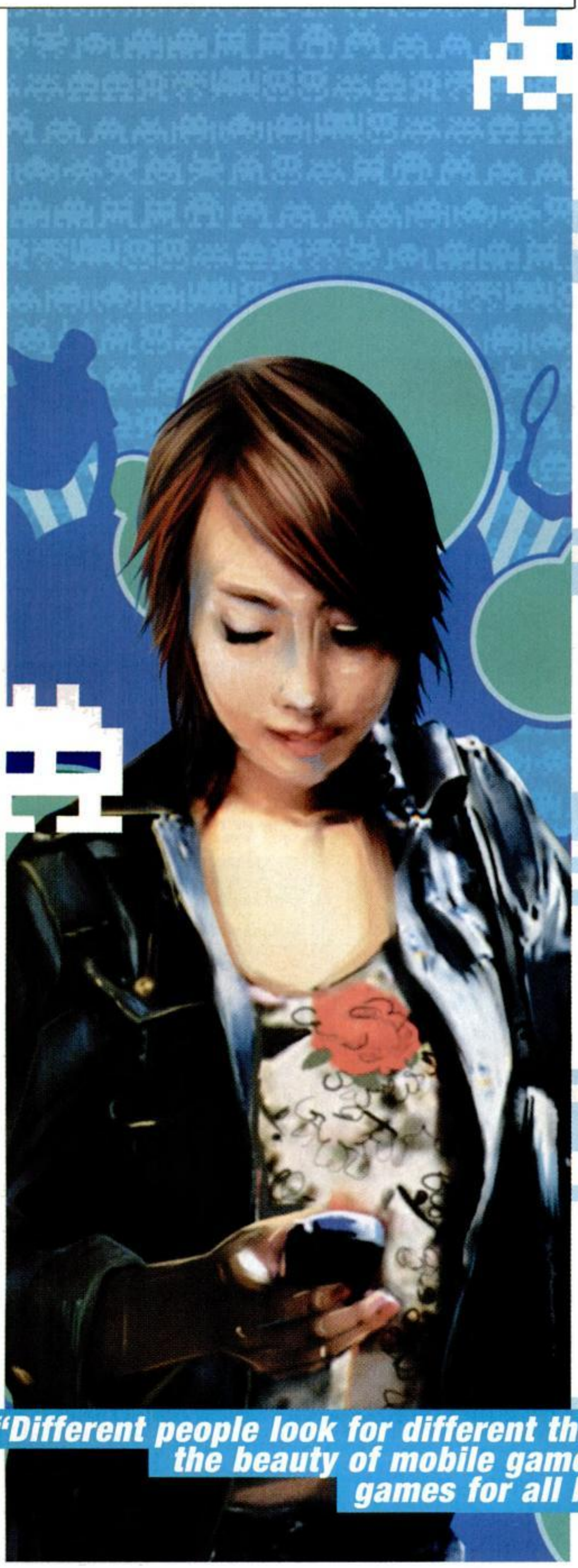
The Wireless Gamer

WAY outside the game-geek stereotype



"This indicates that that we're getting different types of people, ranging from the more traditional gamer with the action/adventure and sports categories, as well as a broader customer who's probably a little older and more likely female with the puzzle and card & board games," said Stein.

Meanwhile, the study also showed that because of the fundamental limitations of wireless games today, gamers don't look at mobile games as a substitute for portable or console games. Instead, mobile games offer a way "to kill time or alleviate boredom," according to the survey. Americans want to play cell phone games in short 10 to 15 minute bursts while they're waiting in line.

And therein lies the allure of cell phone games: They're easy to get into, the phones and games are getting better all the time, and they can make those inevitable waits-in-line we all face in life a little bit more fun.

"Different people look for different things in games, and the beauty of mobile games is that we've got all kinds of games for all kinds of people,"

ANDREW STEIN

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"Superbly Playable"
"A Fresh Experience For Mobile"
"Hugely Recommended"
IGN RATING 9.0/10

IGN.COM EDITORS' CHOICE AWARD

"You Must Experience This Game"
WG WORLD RATING 5/5

WGWORLD.COM
EDITOR'S AWARD

JAMDAT mobile

AIRTIME CHARGES APPLY

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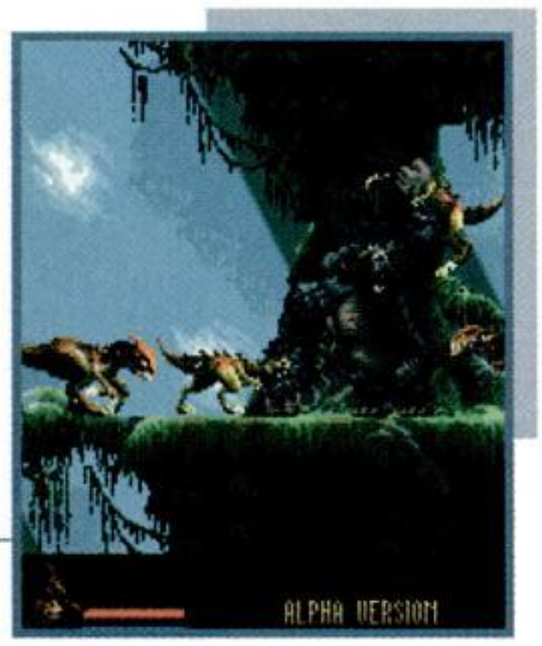
The Hottest Games

The latest and greatest interactive entertainment for your Cingular phone

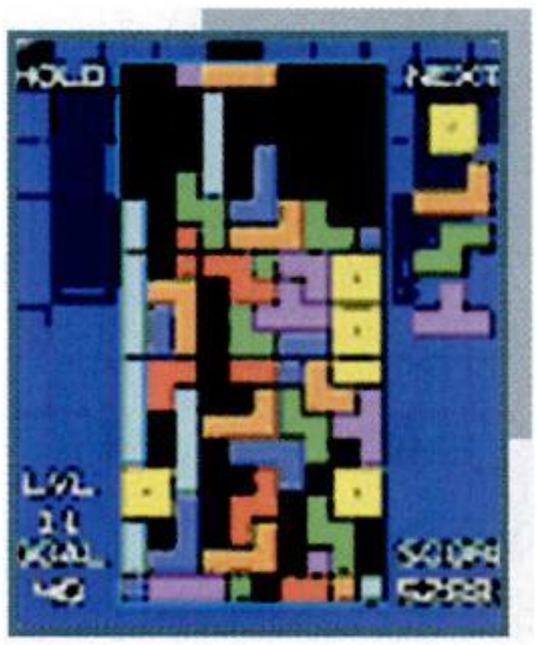


Hollywood

Peter Jackson's King Kong

Gameloft

The most anticipated movie of the fall is also one of the biggest mobile games of the season. Peter Jackson worked closely with Ubisoft to bring his vision to the videogame and Gameloft has followed suit with a mobile experience that allows gamers to play as both Jack Driscoll and King Kong. Whether climbing the Empire State Building as Kong or traversing through the jungle as Jack, the objective remains the same—to protect Ann Darrow. With vivid graphics and fluid animations, it should reign as a king of the mobile jungle.



Puzzle

Tetris

JAMDAT

There's a reason why Tetris remains the most popular videogame of all time with over 60 million units sold worldwide. The iconic game helped Nintendo sell millions of Game Boys and was a major reason JAMDAT paid big bucks to scoop up 15-year mobile rights to the iconic puzzle game. No matter what kind of cell phone you own, Tetris, like JAMDAT Bowling, is a pure crossover hit. It's been parlayed into many forms over the years on nearly every portable and console system, but the core gameplay remains as challenging and addictive as ever.

Hollywood

Fantastic 4

Mforma

The surprise hit film has spawned a fun mobile game. Players can assume the roles of each member of the superhero quartet: Mr. Fantastic, the Invisible Woman, the Human Torch and the Thing. The game employs a cel-shading style and a unique camera zoom to bring the action to life on the small screen, and offers plenty of challenges through puzzles, platforming and flying action. Each superhero is armed with two special moves and a number of basic attacks.

Hollywood

Star Wars Battlefront Mobile

THQ Wireless

The popular multiplayer console and PC game goes mobile with over 40 levels from planets in all six Star Wars films. Players can choose one of four factions, including the CIS, Republic, Rebel Alliance and Galactic Empire and embark in all-out warfare both on foot and in cool Star Wars vehicles like AT-ATs. The action takes place in a real-time pervasive world with solid graphics and an intuitive third-person perspective. Multiplayer gaming allows you to track your high scores on the leaderboards, check out the interactive planetary maps for real-time battle stats and update your player profile. Although the movies are over, the adventure lives on.

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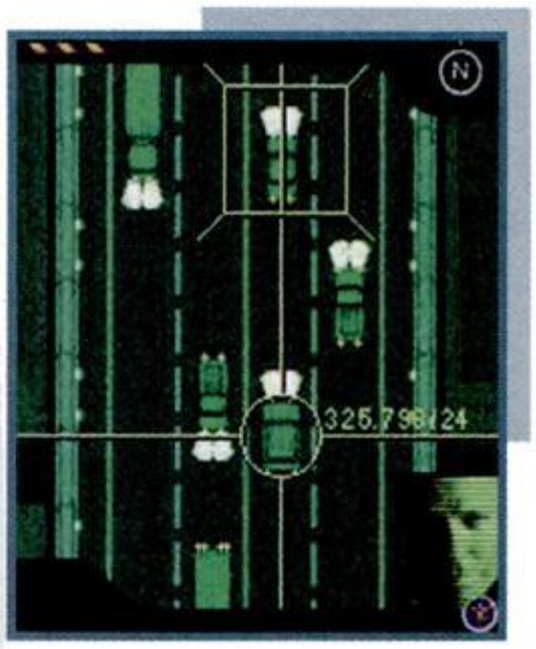
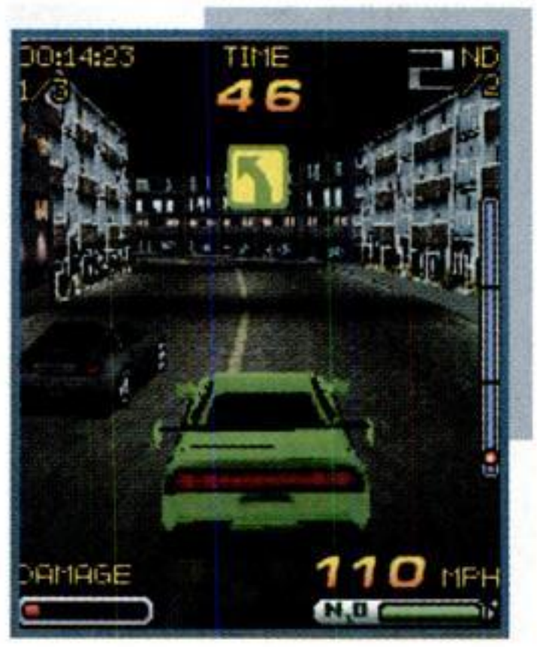


Hollywood

24

I-play

These days, "24" is everywhere, including on Fox TV, on console videogames from 2K Games, and now on cell phones. Players assume the role of a CTU agent and interact with characters from the hit TV show in original missions. It's a race against time to stop a potentially devastating war between North Korea and the U.S. Utilizing a spy phone, players contact, assign and guide Jack Bauer and other agents through a series of mini-games and puzzles. The real-time aspect of the TV show translates well to the variety of short mission challenges.



Hollywood

3D The Fast and the Furious

I-play

Console game developer Juice Games (Juiced) has slid behind the wheel of I-play's third mobile game based on Universal Pictures' racing film franchise. The new game is the first to add 3D graphics to the driving excitement. The career mode challenges the player to a series of one-on-one street races against progressively tougher opponents, rewarding success with cash prizes that can be spent on nitrous, body kit and engine upgrades for their car. The Java version of the game features eight races, pitting you against four successive characters from the film.

Puzzle

ML Wordjong

Digital Chocolate

Ported over from PC, ML WordJong combines solitaire with word building for the ultimate word-puzzle game. Spell words using letter titles and clear the board to win, and use your jade and wild tiles wisely to score big points. If you like classic word puzzle games, this title is for you The game includes one of the largest dictionaries for any cell phone game with more than 50,000 words, includes mobile league play, and is topped off with Asian-influenced sound effects and graphics.

Console

SOCOM: U.S. Navy SEALs: Mobile Recon

JAMDAT

Set within the world of Sony's SOCOM 3: U.S. Navy SEALs game, this new Mobile Recon experience puts you in the boots of an advance team of two SEALs—mission leader Wraith and Bronco. As the name implies, your pair of SEALs is running a recon for the Morocco mission you'll play in the PS2 and PSP version of Sony's best-selling franchise. An insurgent is trying to overthrow the government and it's up to you to quell the plot. Wraith excels with a sniper and a knife, while Bronco enjoys blowing things up with grenades and C4. Both of these talents will come into play as you make your way through the various missions, which include hostage rescues, snatch operations and target practice (from the back of a moving truck). While you always control Wraith, barking orders to Bronco is necessary to take out armed guards and work your way through the different environments. This collaborative effort among Sony, JAMDAT and developer Ironmonkey Studios has brought the essence of the popular first-person shooter franchise to the mobile landscape with unique gameplay and a fun and rewarding experience.

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Console

Brothers In Arms: Earned in Blood

Gameloft

Gearbox Studio's best-selling WWII first-person shooter comes to the small screen with a new third-person overhead perspective. Chronicling the D-Day invasion of Normandy, the game puts players in the boots of paratroopers in the chaos of the largest offensive the world has ever seen. Controlling your soldier on the ground is a snap, which is a requisite in taking out the Nazi soldiers, tanks and other obstacles strewn throughout the battlefields of France. There's even the ability to jump into a tank and plow through the enemy forces. This arcade approach to the War to End All Wars works well on mobile, thanks to vibrant graphics and intuitive gameplay. With vivid graphics and fluid animations, it should reign as king of the mobile jungle for quite some time.

Console

The Sims 2

EA Mobile

Everyone loves The Sims. Now, PC players can download their favorite Sims to their phone and experience the fun on the go. For those who are newbies, this mobile version also has Sims to choose from. The game offers life aspirations and the ability to customize lots, trade objects, and socialize with other players in-game or send SMS or MMS messages to friends. The game allows mobile players to gather and socialize in the virtual Sims universe, which has always been a fun part of the franchise. As an added bonus, the game offers ringtones and wallpaper to complete your mobile Sims transformation.

Console

Ratchet & Clank

Sony Pictures Digital

While Ratchet & Clank are starring in their fourth console adventure this fall, they're making their first leap into mobile gaming. The game sends Ratchet & Clank, who have been miniaturized and trapped inside a cell phone, on a hunt for a way out. Taking a cue from the PlayStation 2 franchise, Ratchet is armed with weapons like the Boarzooka, Gravity Bombs and Mini Rockets. New weapons can be purchased in between levels. Always a fun console experience, this marks the first time that Sony's ported an exclusive PS2 franchise onto a cell phone. And judging from the playability of this title, it won't be the last time.

Console

Doom RPG Mobile

JAMDAT

Don't let the RPG fool you. This Doom is still all about the BFG and blowing away as many demons and monsters as possible. With 10 levels of 3D horror and an intricate storyline that utilizes the touchpad of your cell phone, this new Doom was designed for mobile mayhem. About eight hours in length and loaded with secret levels and new weapons—like the Cerebus for controlling those Hellhounds, the turn-based action moves at a brisk pace. The RPG element adds a new dimension to the game, as you interact with the many inhabitants of the UAC Mars base and a full-fledged story unfolds. An extensive tutorial teaches you the ins and outs of the new Doom gameplay, and leaves you alone just as all Hell breaks loose. While it may not pack the visceral scares of the Xbox Doom 3, open a wrong door and stare into the eyes of a cacodemon—and you still are in for a mobile shock. It's obvious that id Software worked closely with JAMDAT and developer Fountainhead Entertainment to bring this classic horror story to life on the small screen. If they can successfully translate Doom to mobile, any PC or console game is up for grabs.

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SONY PICTURES DIGITAL

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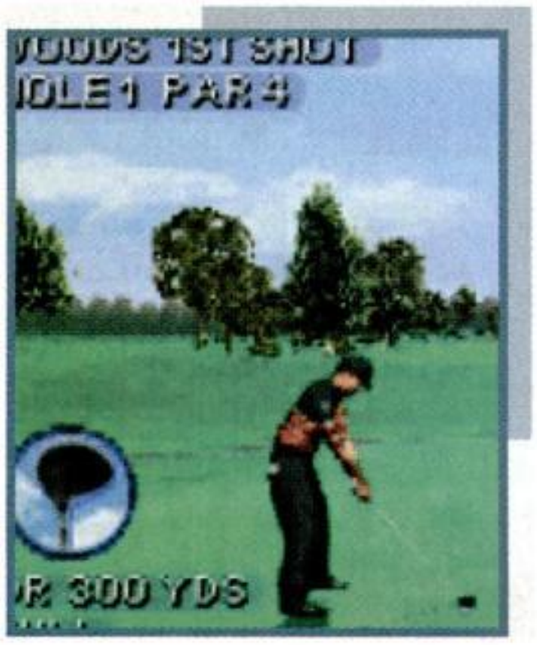
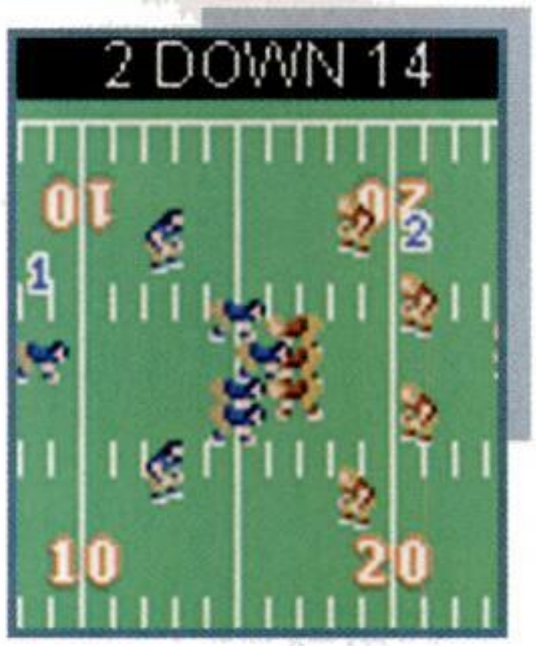


Sports

EA SPORTS 2006 Tiger Woods PGA TOUR

EA Mobile

Tiger Woods is synonymous with golf, and golf videogames. EA has brought a collection of authentic courses and legendary and current PGA pros to this portable game. Strong play on the links will unlock a number of legendary golfers like Jack Nicklaus, as well as earn trophies for your collection. A challenge mode allows golf fans to work their way up through tournaments to take on Super Tiger, which even veteran gamers should find rewarding. Despite the small screen, EA Mobile has incorporated dynamic camera movements that show the action from multiple perspectives. The game also includes a running commentary, just like TV broadcasters provide every weekend.



Sports

Tecmo Bowl

Tecmo Mobile

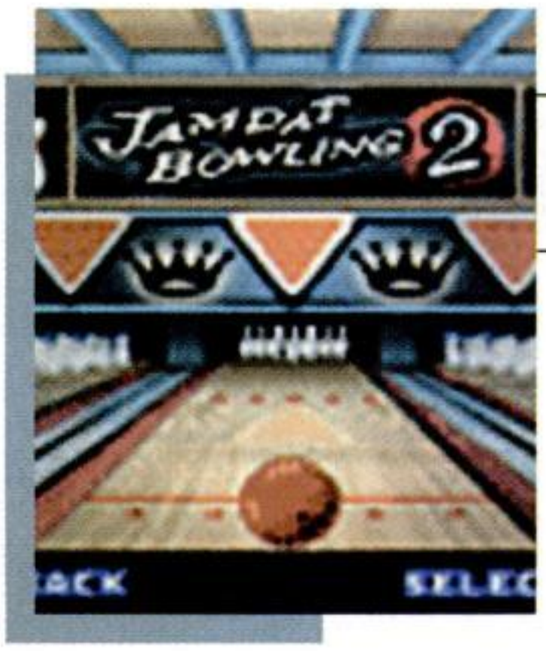
Classic games have been popular on cell phones since they don't require 3D graphics and are often easy to pick up and play with a cell phone keyboard layout. Tecmo brings its popular football franchise to the small screen. Like the NES version, there are no NFL team or player licenses, but that doesn't detract from the simple and addictive gameplay. With 16 teams complete with unique traits and playbooks, there's plenty of pigskin action packed into this little package.

Sports

Texas Hold'em by Phil Hellmuth

Summus

You watch poker on TV. You play with friends. You play online. And still, you can't get enough. One of the world's most intimidating poker players has saved a seat for you at his table. Texas Hold'em by Phil Hellmuth multiplayer poker game is based on the wildly popular card game. You can play it solo or against others on the wireless network. While no real money changes hands, if you do well the world will know. And now you can increase the stakes with real-time elimination tournaments. You can even go to the Texas Hold'em Ranking site to see the top winners by week and month.



Sports

JAMDAT Bowling

JAMDAT

Although most people consider it a leisure pastime, bowling is one of the easiest and most addictive games you'll play on your cell phone. It's on of the few sports that translates well to one-button controls, which makes it easy to get hooked on, but difficult to master (a traditional formula for any great game.) Whether you jump into a traditional 10-frame game or roll a three-game series, it's hard not to find yourself getting caught up in the action, and losing track of time. Aim, power and spin meters are all done with the touch of a button, and when you notch your high score, you can save it for future reference and bragging rights. Optional in-game commentary adds depth to this game for all ages.

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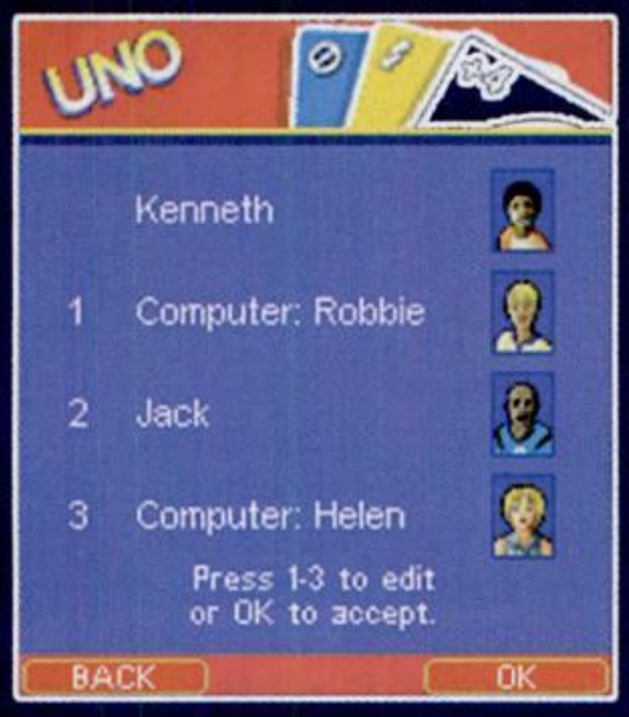

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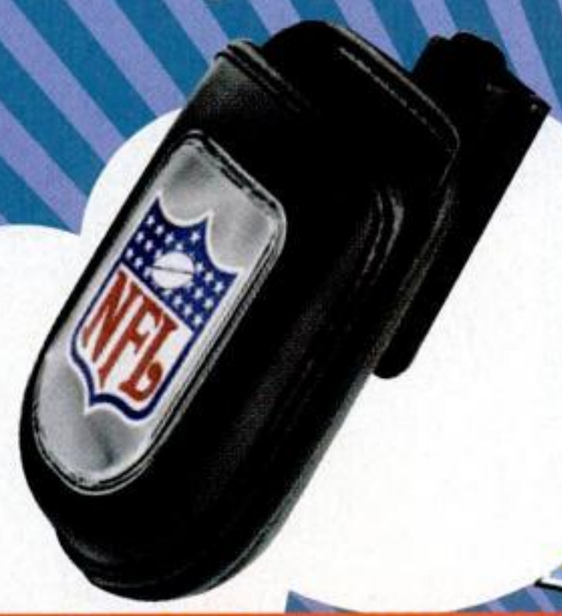
Pump Up my Phone

Cool accessories to customize your phone

RAZRWIRE Bluetooth® Eyewear

Now you can talk on the phone outside and look cool simultaneously. Motorola and Oakley have teamed up to deliver a stylish pair of metal-framed sunglasses and a detachable Bluetooth earpiece. The glasses work with the hot new RAZR phone, as well as other models. Hands-free driving has never looked this good. And there are even different color shades to choose from, for those who want to color coordinate their gear.



Motorola Universal NFL Branded Cell Phone Case

The NFL is in full gear, so why not support your favorite team on the go? For one price, this universal leather case (which supports most flip phones) comes with all 32 NFL team logos. Choose your home team and protect your phone on the road. A detachable, rotating belt clip ensures you don't lose that phone. And the low price scores a touchdown.

Bluetooth® Headsets Motorola HS820

No matter what make or model your phone is, the odds are there's a cool Bluetooth® headset available for it. Hands-free talking without the pesky wires is certainly a must-have these days. Prices range from $35 to $100 for these cool gadgets, which come in an assortment of colors and styles. Most Bluetooth® headsets work from as far as 30 feet away, which leaves plenty of room for maneuvering while on the phone.

Ringtones and Graphics

From the Blacked Eyed Peas to Elvis, and from Daisy Duke to Mickey Mouse, Cingular lets you personalize your phone with an almost limitless array of ringtones and graphics. We recommend compiling a library of your favorites so you can mix and match depending on your mood or the time of year.

Check it out at www.cingular.com/mediamall

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The Future of Mobile Gaming

Much like the PC market, new cell phones with advanced features, including the ability to play true 3D games, are always entering the market. With the advent of newer phones comes a better gaming experience. Andrew Stein believes the future looks bright for mobile games.

"As we roll out new handsets and faster network speeds, things like real-time multiplayer games and streaming content will migrate to mobile gaming," said Stein. "Imagine getting a cinematic cut-scene on your cell phone just like the ones you see in console games. This will happen in the near future, as video segments will be streamed over the air into the game in real-time. Streaming music will also come into play for robust soundtracks that will rival anything available on console."

"The transition from 2-D to 3-D mobile games is similar to the shift we'll see in the next few years as the game industry shifts from Xbox and PlayStation 2 to Xbox 360 and PlayStation 3," said EA Mobile vice president and general manager John Batter.

Batter said the transition will be a bit slower because mobile game publishers have to deal with such additional factors as infrastructure and the different capabilities of carriers but that it is happening and should be complete in the next couple of years for North America.

"By late 2006 and early 2007, we'll see 3-D cell phone games on par graphically with PSP games," said Batter, who added that this year's EA cell phone games featured software-rendered 3-D graphics, while next year's games will feature hardware-accelerated graphics.

"As handsets get more sophisticated, game makers will be able to better translate the movie experience for the mobile gamer in terms of graphics and gameplay," said Michel Guillemot, president of Gameloft, which has many Hollywood licenses. "The overall experience will be richer and more satisfying."

Trip Hawkins, CEO of Digital Chocolate, said that while the graphics will improve, the handsets will always be limited by small screens. With that in mind, the biggest growth in mobile gaming will likely be in the quality of games.

"The one problem that consumers face today is an over saturation of product," said Hawkins. "There are too many game developers offering too many games."

Wireless carriers that once carried 250 titles on their websites are already cutting the number of games to 150 to 200 titles and focusing more on quality games. Carriers want to offer a full range of choices, but they want games that are easy to use and are solid entertainment value. And that, more than improved visuals, will likely translate into more consumers of all ages exploring mobile gaming.

Batter believes that a larger segment of gamers likely will turn to mobile phones for gaming on the go, while a separate segment will carry both a cell phone and a gaming device such as a PlayStation Portable or Nintendo DS.

Joe Morris, Konami executive director of mobile content, says new 3D handsets will allow the company to bring games like *Metal Gear Solid, Silent Hill* and *Castlevania* to cell phone by early next year.

"We have a wave of new 3D games on the horizon to play on the new 3G phones that are shipping over the next year," said Morris. "This is a great space to be in right now."

New phones hitting the market will continue to add multifunctionality, including the ability to download music, music videos, and short video segments. True 3D multiplayer gaming is also an evolving technology for wireless gaming; and with more phones offering e-mail access, PDA functionality and the ability to store hundreds of MP3 songs and multiple 3D games, mobile games will continue to develop at a furious pace

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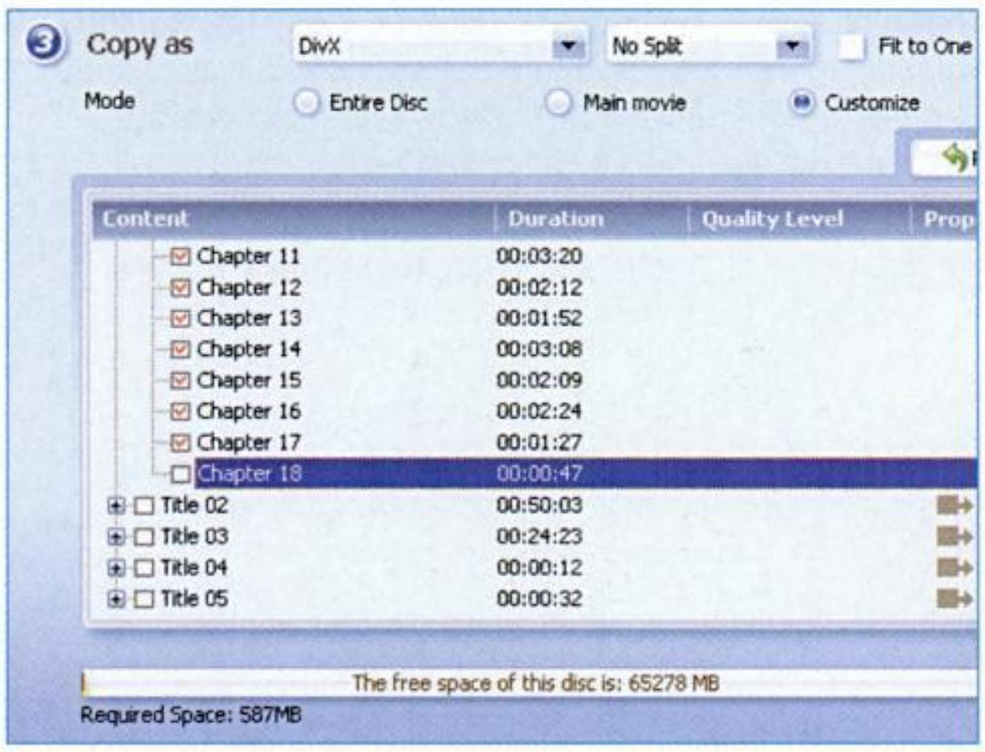
8 Select Your Content

Our DVD of *The Year Without A Santa Claus* includes two additional movies, which we don't want to compress. The scene index from the box indicates that *The Year Without A Santa Claus* is the first movie on the disc, and by looking at the content list reported by *DVD Copy 4*, this is obviously Title 01. After checking Title 01 as the movie we want to compress, we now have the option to click the plus sign next to the title and get a chapter listing. We want all the chapters from Title 01, so we're not going to uncheck anything here.

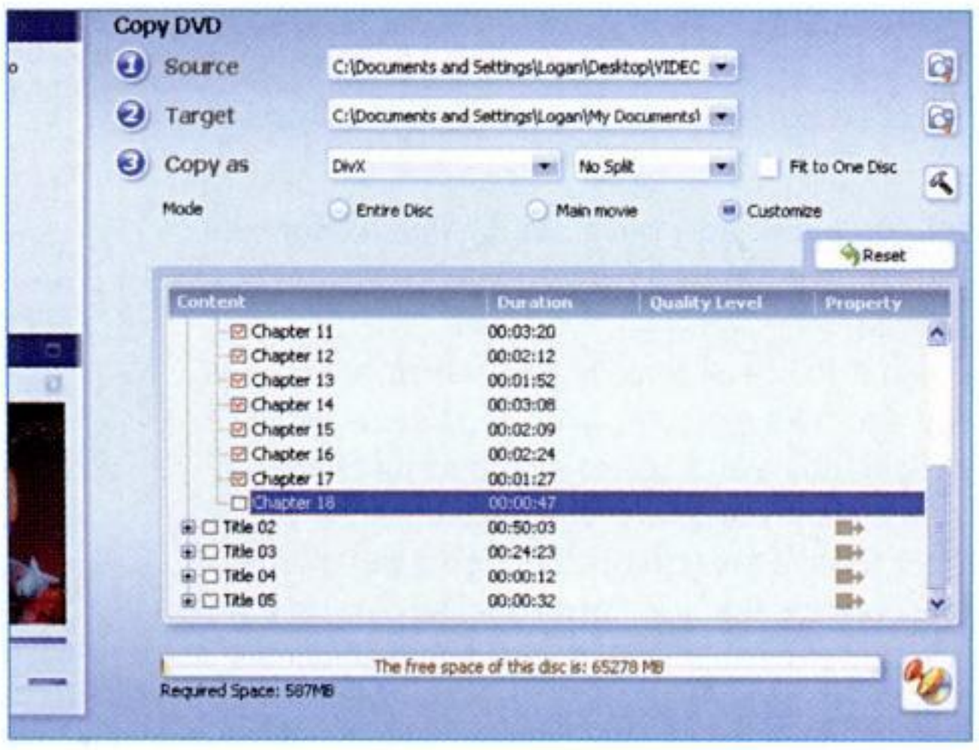


If there are specific chapters you want to delete—such as the end credits—you can deselect them here.

9 Examine Property Sheets for Content

In this step, we're going to strip out any content within our movie that we don't need. This might include subtitles, alternate audio tracks, and even alternate video tracks. Luckily, *The Year Without A Santa Claus* doesn't have a lot of this kind of thing. By clicking Title 01 and then clicking the Property sheet button on the same line, we see that there's only one Dolby Digital audio track (which we want to keep), and no subtitles or funny business.

If you're not sure what a video title or chapter contains, just click that title or chapter to highlight it and then click the Preview button at the bottom left of the screen.



You can audition any title or chapter by simply highlighting it and checking it out in the Preview box.

10 Explore Your Options

There's one more item to check off before you begin transcoding and burning your content. Click the tiny hammer icon next to the Fit to One Disc checkbox to access the Optional Settings tab. Under Output Video System, select NTSC (unless you have a good reason to believe you'll be fleeing to Europe anytime soon). You can give your disc a descriptive label under Disc Label/File Name. And finally, check the "Preview while transcoding" box if you want to monitor the process, which is unlikely considering it will take several hours.

Click OK to close this tab, and then click the burn icon at the bottom right. *DVD Copy 4* does the rest for you! MPC

Ask the Doctor

Diagnosing and curing your PC problems

RAM FOLLIES

I recently added more memory to my Dell Dimension 4600, which has a 2.8GHz Pentium 4, by replacing its two sticks of 128MB, 333MHz DDR RAM with two sticks of 256MB, 400MHz DDR RAM. When my PC boots, it recognizes the new RAM and tells me it now has 512MB of memory; but ***Sims 2*** *crashes every time I play, and Windows itself often goes down with a blue screen. Is this a sign of bad RAM, or is there something wrong with my computer?*

—Theodore Powell

The problem is likely the result of your memory upgrade. Try reseating the memory modules. A bit of debris might have gotten in the slots, or the contacts might be dirty. You should also test your RAM. You can download a free tester from www.memtest.org, thanks to the guys and gals on the X86-secret team.

Download the prebuilt ISO, burn it to CD, and you'll have a self-contained memory tester. You might discover that the memory chips are OK, but that the module's SPD (serial presence detect) chip, which tells the computer how to configure the RAM, doesn't work well with your Dimension 4600. If that's the case, return the RAM and buy some that will work with your machine.

THIS IS A RAID!

I'm having trouble figuring out the SATA, hard drive, and optical configurations on my Asus P4C800-E Deluxe motherboard. I have a Western Digital 36GB Raptor and a Western Digital 320GB SATA hard drive connected to the motherboard's SATA 1 and SATA 2 ports, respectively. Windows boots from the Raptor, and I use the 320GB drive for media and general storage. I'd like to add more storage, possibly in the form of an additional 320- or 500GB

Continued on page 68 →

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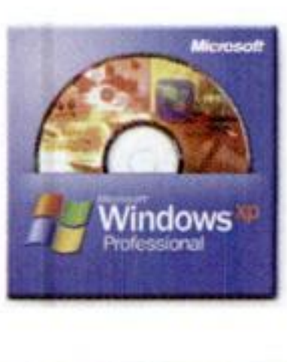

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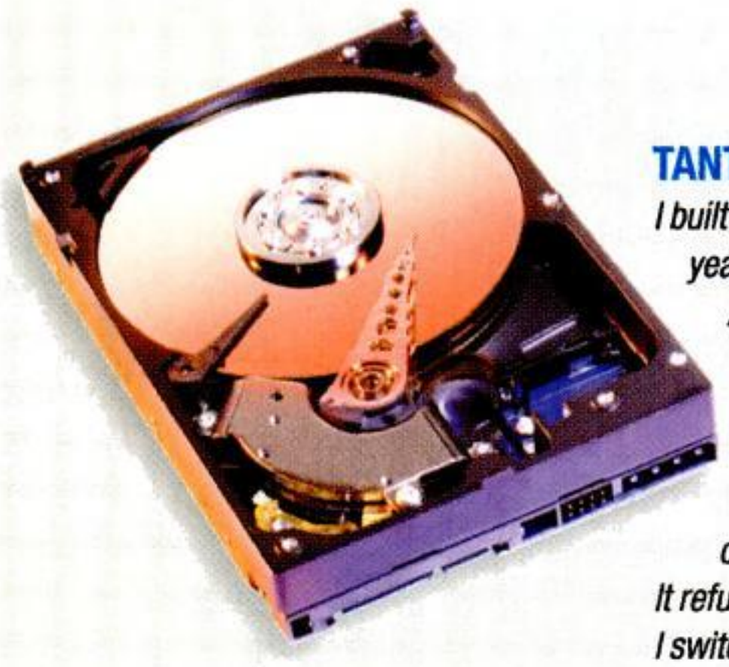


If all your SATA ports are full, try plugging your additional hard drive into your motherboard's SATA RAID port and configure it as a JBOD array.

Continued from page 66

drive. Should I plug this third drive into the SATA RAID 1 or SATA RAID 2 port? If I don't use the RAID port for this third hard drive, can I use that port to control a SATA optical drive?

—AngelCake Ana

The Doctor doesn't have your particular board on hand, but he's pretty sure the RAID controller on that board lets you set up a JBOD (just a bunch of disks) array, which combines the capacity of all the drives in the array into one huge volume. You should also be able to run this type of array with a single drive—just go into the BIOS and make sure the Promise controller is enabled. Next, shut down the machine and connect the drive to either of the SATA ports and turn it back on. Watch your monitor while the machine is booting and be ready to press the appropriate keys to get into the RAID-configuration menu.

Use the RAID wizard to create an array, select JBOD, follow the instructions, and then reboot your PC. Once you're back at your desktop, the drive will be available for use as soon as you format it.

TANTRUMS OF A 3-YEAR-OLD

I built my own computer about three years ago. It's outfitted with an AMD Athlon XP 2800, 1GB of RAM, and an nVidia videocard with 128MB of RAM. It worked flawlessly until about two months ago, when it mysteriously started shutting itself down. It refuses to come back on unless I switch off the power supply, wait several minutes, and then switch it back on again. I thought it might be overheating, but running it with the side panel removed didn't solve the problem; blowing the air from a small personal fan into the case didn't help, either. I've also cleaned all the ventilation holes.

After four virus checkers and five utility programs failed to detect anything—ruling out viruses, Trojans, and spyware—I decided to replace the power supply with an OEM model. This solved the problem for a little while, but now it has resurfaced. Has this power supply gone bad, too? Or do you think there's something wrong with my motherboard, CPU, or some other component?

—Thomas N. Bailey, Maj, USAF

The Doc thinks your initial PSU diagnosis makes the most sense. Non-branded power supplies are often of dubious quality, so it's very possible the new one is also defective. You should exchange it. If you still have problems after the third PSU, then something else is likely afoot.

Older Athlon XPs are finicky about heat. If the thermal paste between your CPU and heatsink has dried up, a gap might have opened and allowed the CPU to overheat. Defective capacitors are another common problem with older Athlon XP motherboards. Examine yours closely to see if any of them are bulging. The thermal-paste problem is an easy fix; the capacitor problem is slightly more complicated. A useful source of repair services and DIY kits is Motherboardrepair.com.

CRUSTY, BUT NO CLOWN

I've been using an Epox 8RDA+ motherboard for the last two years and haven't had any problems—until recently, that is. The machine won't start up unless I unplug the USB cables that run to the front of the case. While I had the case open, I noticed a crust had formed on the top of a few of the motherboard's capacitors. I know this can't be a good thing, but how much should I worry about it?

—Bob Elliott

The electronics industry has had problems with defective capacitors. Many of the boards will function fine for a few years, until the bad caps finally blow their tops. Your board is exhibiting early signs of this defect, but there's no way of telling how much longer it will function.

THAT'S SOOO FIVE YEARS AGO

My Dell Dimension 8200 was the top of the line five years ago. It's outfitted with a 1.8GHz Pentium 4, 256MB of RDRAM, and an nVidia GeForce 2 MX 400. Today, it's barely able to play such games as ***Far Cry, Half-Life 2,*** *and my personal favorite,* ***World of Warcraft****. I get choppy graphics and extreme lag.*

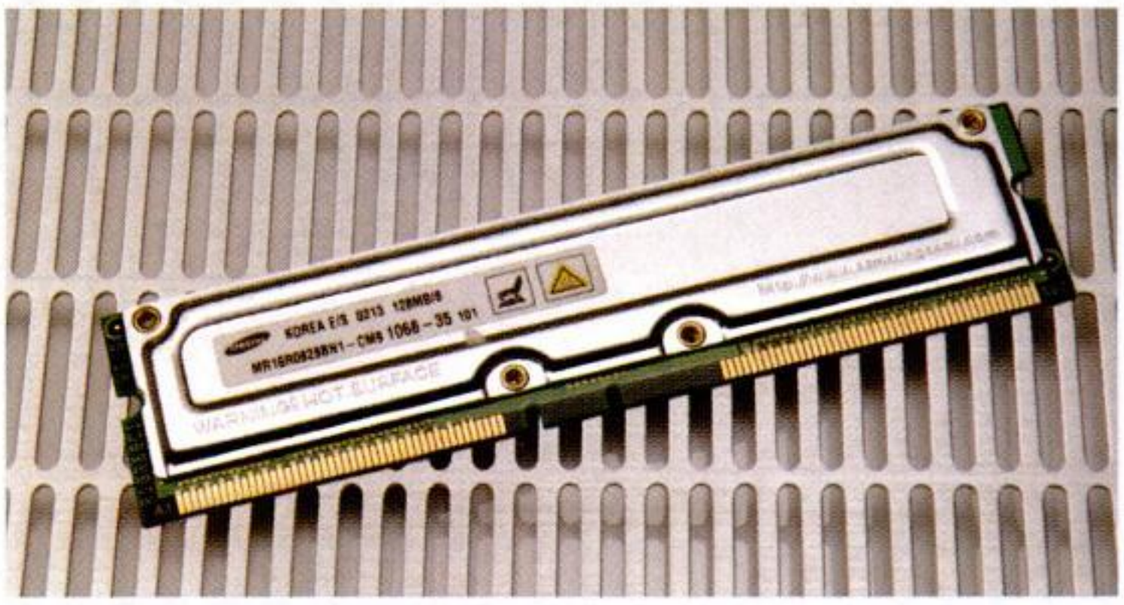
RDRAM, which seems to have fallen out of favor with manufacturers, seems extremely expensive. Does it make sense to upgrade this computer, or should I just bid it sayonara and start over?

—Evan Rietdyk

The upgrades you need most are more RAM, a faster videocard, a bigger power supply, and a faster CPU—in that order. The Dimension 8200 has four RDRAM slots, and you must add RDRAM modules in pairs. If your existing 256MB of RAM is in the form of four 64MB modules, therefore, you'll have to junk two of them to upgrade. A pair of PC800 256MB modules will cost you in the neighborhood of $160 to $190 and get you up to 768MB of total RAM.

The Doc's favorite mainstream AGP boards—ones based on either ATI's Radeon X800 XL or nVidia's GeForce 6800 GT—are priced in the $250-to-$300 range, but they require more power than your Dell's 250-watt PSU can deliver. In fact, it might not be able to handle the next-lower level of GPUs, either. The Inspiron 8200 uses a proprietary wiring harness, so if you do upgrade your power supply—either because you want to or because you have to after frying it while running one of these power-hungry videocards—your choices will be somewhat limited. The Doc suggests checking out the offerings from PC Power and Cooling: its Turbo-Cool 425 Dell goes for about $150.

So, the Doc's upgrade recommendations total up to $550. Adding a CPU upgrade would be a luxury, considering it would tack on another $250. Five years is a pretty good run for a PC. You might want to look into just buying a new machine at this point. MPC



You can file RDRAM under the heading, "It seemed like a good idea at the time."

Is your PC suffering the slings and arrows of outrageous fortune? Enlist the Doctor's help in taking arms against a sea of troubles. Just send an email describing your problem to **doctor@maximumpc.com.** Extra points for letters written in iambic pentameter.

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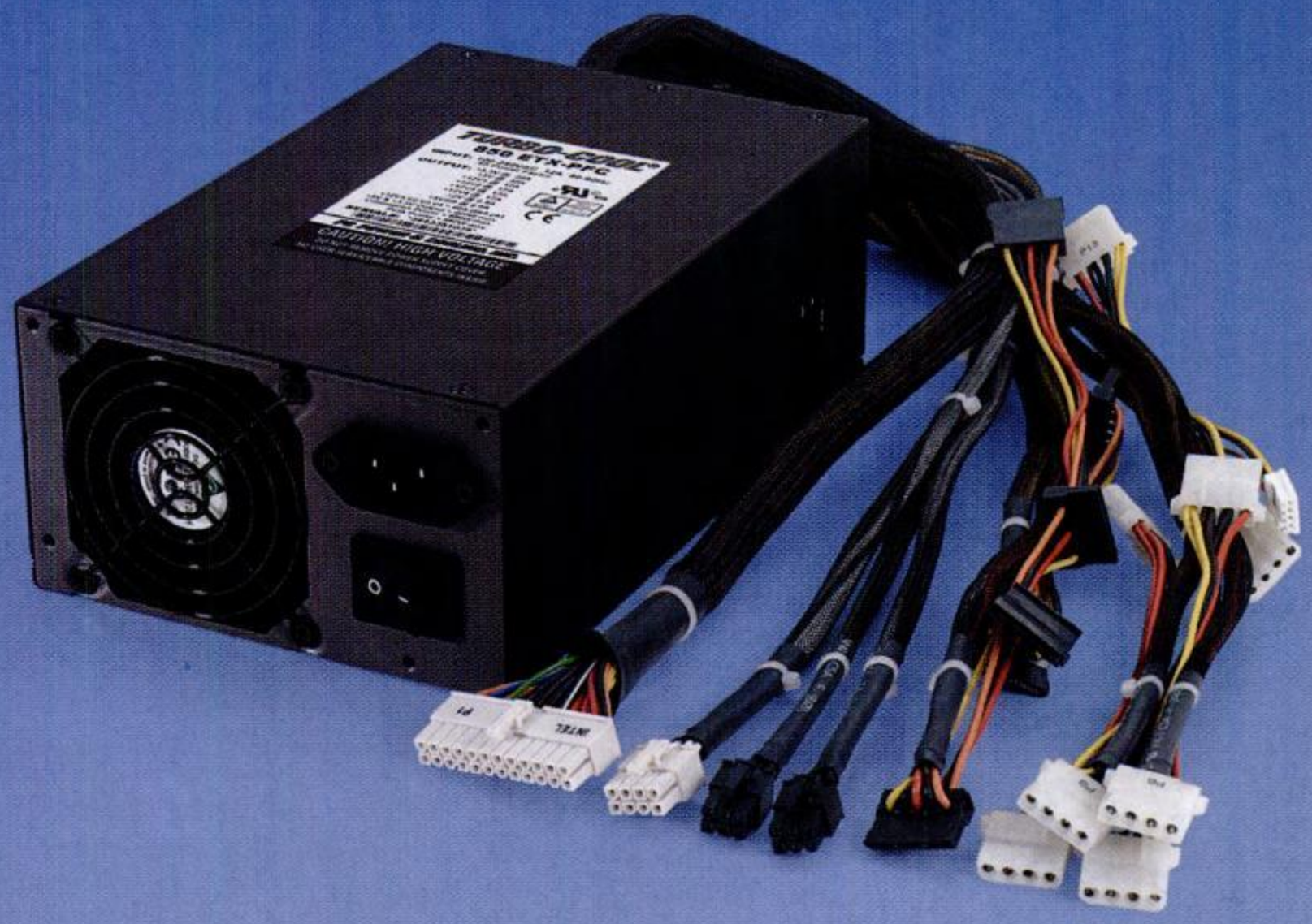

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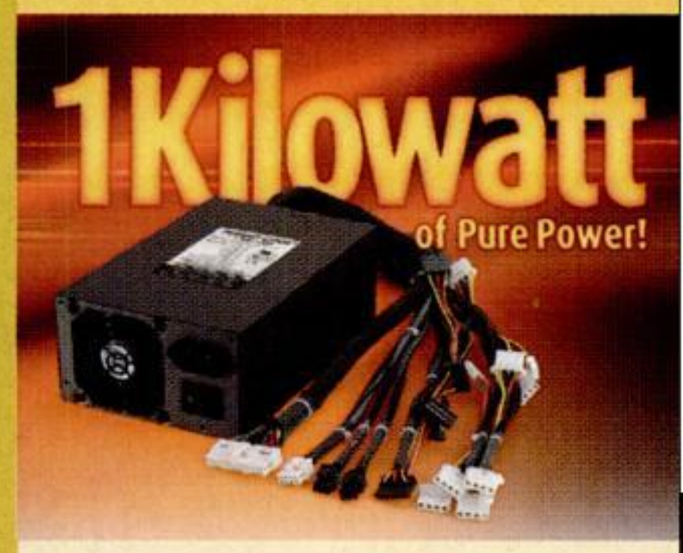

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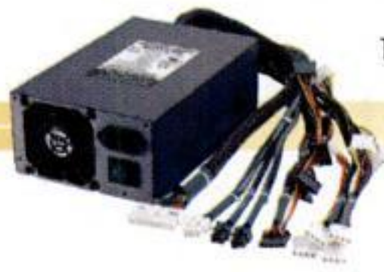

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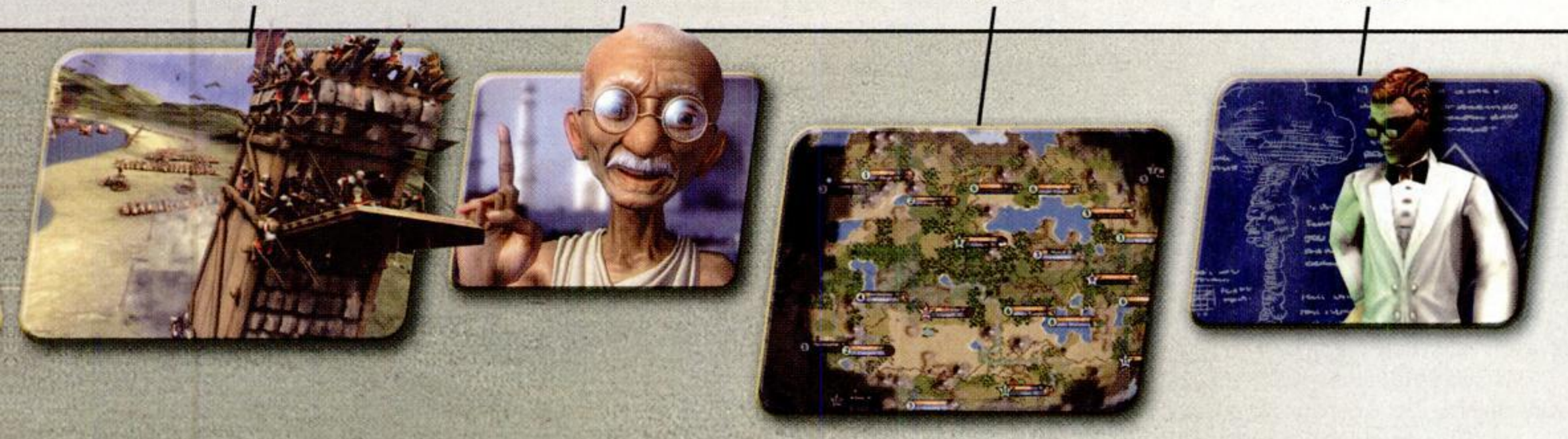

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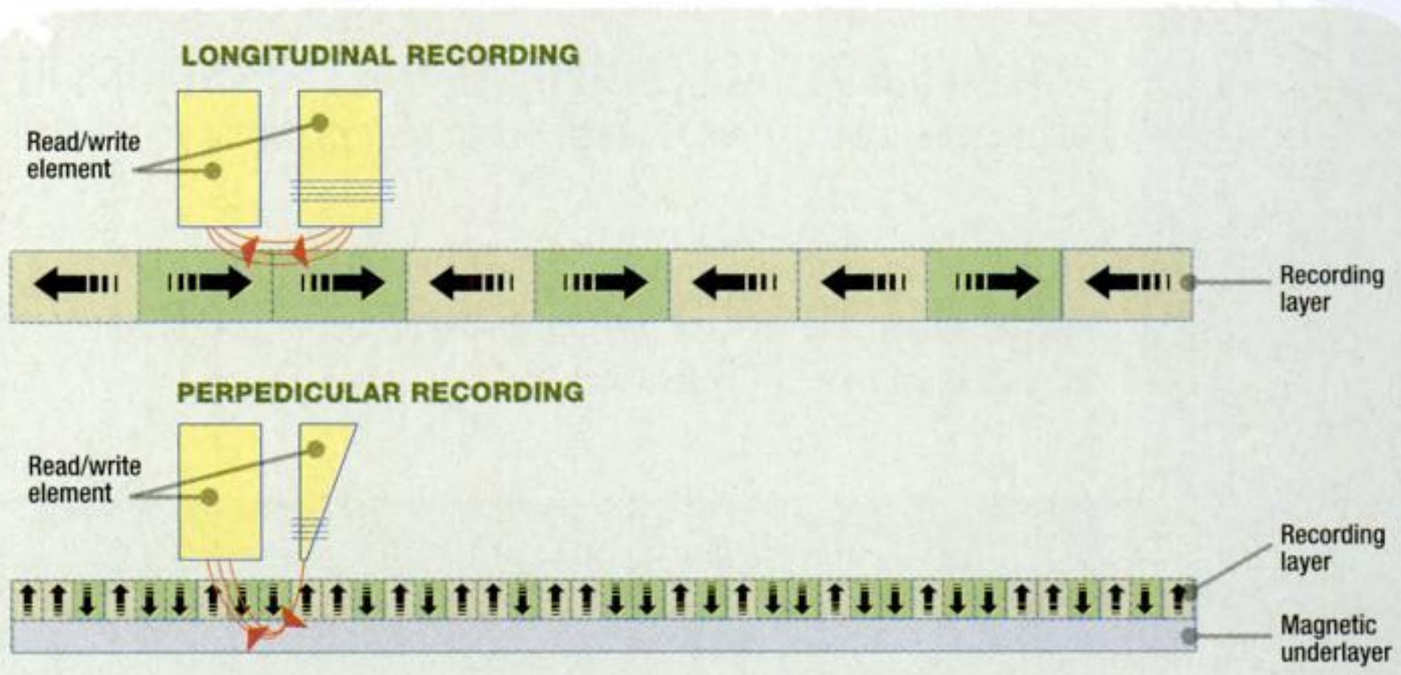
White Paper: Perpendicular Recording Technology

Hard drive capacity using current tech is destined to hit a wall in less than two years. Learn how perpendicular recording technology will allow manufacturers to blast right through that barrier

BY JOSH **NOREM**

HOW IT WORKS **Perpendicular recording technology explained**



►How magnetic storage works: An electrical current (represented here by the red lines) discharged from the read/write head passes into the recording layer, magnetizing the particles. The current then returns to the read/write head to complete the loop. In perpendicular recording, the current passes all the way through the layer and into the magnetic underlayer before returning to the read/write element.

►In longitudinal recording (top), the magnetic bits that represent data are aligned horizontal to the recording media. In perpendicular recording (bottom), the bits are aligned vertically, so that each bit consumes significantly less space on the platter, dramatically increasing areal density.

Hard drive designers have relied on longitudinal recording techniques for more than half a century, and it has served them well. But the technology is finally nearing the end of its useful life and will soon be superseded.

With longitudinal recording, 100 or so microscopic-size magnetically charged grains comprise a single bit of data. These bits lay flat on their backs, oriented end-to-end in concentric rings around the hard drive's platters. Each advance in drive capacity using this technique has been accomplished by increasing the platters' areal density—the number of bits per square inch of disk surface.

But there is a limit to how tightly those bits can be packed, and when that limit is exceeded, bits lose their ability to maintain their magnetic polarity. When the magnetic grains within a bit spontaneously "flip" their polarity, the data they represent becomes hopelessly corrupted. The phenomenon is known as the superparamagnetic effect, and it's like Kryptonite to hard drives.

The hard drive industry has long been aware of the superparamagnetic effect, and engineers knew it would eventually limit their ability to increase hard drive capacities. Back in the 1950s, scientists predicted the effect would raise its ugly head when areal density reached 25 megabits per square inch. Fortunately, those early prognostications proved to be way off base; in fact, manufacturers have been so successful at pushing the barrier that modern drives have achieved areal density of 110 *gigabits* per square inch. This time, however, the experts are really, *really* serious about the impending wall.

THE INEVITABILITY OF FAILURE

The superparamagnetic effect can be delayed, but it can never be defeated. The current consensus is that the phenomenon will begin encroaching on drive development by 2006, when drives reach areal density of 120 gigabits per square inch. Faced with this looming obstacle to progress, engineers have come up with an alternative to longitudinal recording, one that promises to dramatically postpone the superparamagnetic effect. It's called perpendicular recording.

The idea sounds deceptively simple: Instead of laying the oblong bits flat on the disk surface, perpendicular recording stands them on end so that their positive/negative polarity is oriented vertically, instead of horizontally. In this scenario, each bit consumes considerably less surface area on the platter, enabling drive manufacturers to pack in dramatically more bits. The shift to perpendicular recording promises an exponential increase in areal density, a benefit that will be realized over the next five to seven years.

When bits are tightly packed in a longitudinal-recording drive, adjacent bits with the same magnetic polarity—north pole next to north pole, for instance—tend to repel one another. The tighter the bits are packed, the more susceptible they become to flipping. The bits in perpendicular recording are more magnetically stable because they're arranged so that one of the adjacent bits always has the *opposite* magnetic polarity—north pole to south pole. What's more, the recording media on perpendicular-recording drives is deposited on a soft magnetic underlayer, which produces a higher magnetic field that further strengthens each bit's ability to maintain its magnetic polarity.

NOW THAT'S DENSE

How far will perpendicular recording take us? According to the most optimistic estimates,

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the technique will enable a tenfold increase in drive capacities over the next five to seven years: That translates to an areal density of one *terabit* per square inch, compared with today's anticipated limit of 120 gigabits. Areal densities that high would pave the way for 3.5-inch drives capable of holding more than four terabytes of data, 2.5-inch notebook drives boasting 500GB capacities, and 1.0-inch drives packing up to 60GB.

In preparation for the switch to this new technology, drive manufacturers have been experimenting to see just how far they can take it; and the results so far have been promising. Seagate, for instance, has already demonstrated a drive with an areal density of 245 gigabits per square inch and with read speeds of 60MB/s—a tick faster than today's fastest 7,200rpm drives, but with more than twice the capacity. Hitachi, meanwhile, demonstrated a prototype drive last March that delivered areal density of 230Gbpsi. The company said it expects to see one-terabyte 3.5-inch desktop drives and 20GB Microdrives rolling off its assembly lines sometime in 2007.

WHAT'S NEXT?

Perpendicular recording will fend off the superparamagnetic effect for several more years, but engineers around the world are hard at work developing what they hope will prove to be the next quantum leap in storage technology beyond even that.

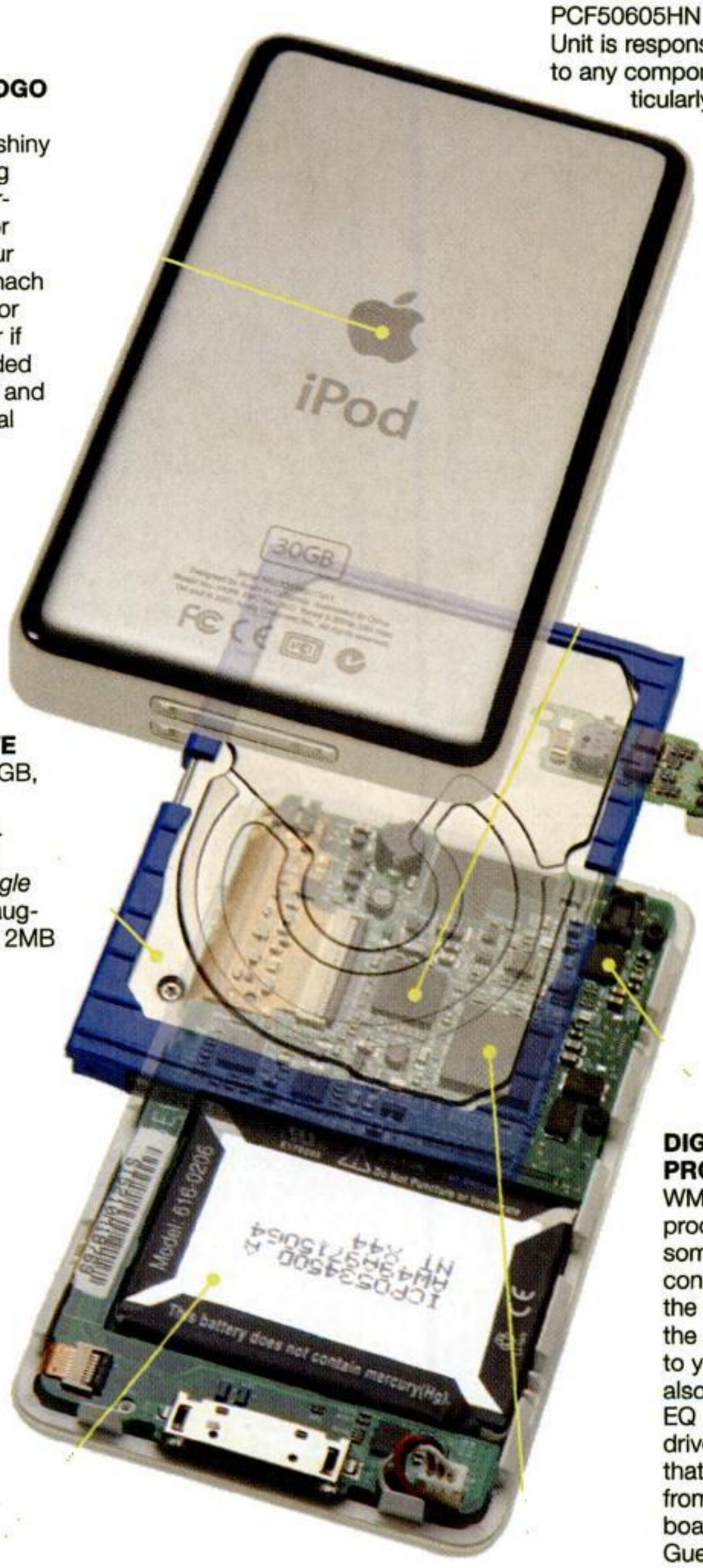
A hybrid technique known as heat-assisted magnetic recording, for example, envisions using a laser to create a hot spot on the magnetic media while data is being written. Heating the media reduces the magnetic field required to write to it; the subsequent rapid cooling stabilizes the data that's been written. Heat-assisted recording promises a dramatic increase in recording density while simultaneously circumventing the superparamagnetic effect.

Self-ordered magnetic arrays (SOMA) are yet another approach to the problem: As mentioned earlier, each bit of data consists of about 100 grains of material. Scientists are exploring the possibility of using an array of iron-platinum particles to achieve a bit-to-grain ratio of 1:1. This technology would increase bit density by a factor of 100, because each bit would be represented by a single grain of material.

While perpendicular recording, heat-assisted magnetic recording, and self-ordered magnetic array technologies promise impressive advances to storage, the superparamagnetic effect will continue to present a barrier to progress as long as the hard drive industry relies on electromagnetic technology for data storage. MPC

iPod Photo

Dual-core processors, WMA support, and other secrets of the fourth-generation Photo iPod



CULTISH LOGO The iPod's emblematic shiny silver backing is also utilitarian—great for checking your teeth for spinach after dinner, or as a reflector if you're stranded in the desert and need to signal for help.

POWER MANAGEMENT UNIT Philips PCF50605HN Power Management Unit is responsible for delivering juice to any components that need it (particularly when the hard drive spins up). It's also a housekeeper, turning off the backlight if you haven't touched your iPod in a while.

HEADPHONE JACK The headphone/remote-control jack attaches to the main logic board via the gold-colored ribbon.

HARD DRIVE Toshiba's 30GB, 4,200rpm MK3006GAL stores all 30 gigs on a *single disc platter* augmented by a 2MB cache.

DIGITAL SIGNAL PROCESSOR The Wolfson WM8975 digital signal processor is the toothsome voice of the iPod. It converts digital data from the MP3/AAC decoder into the analog audio that's sent to your headphones. It's also the home of the iPod's EQ presets, the headphone driver, and a noise gate that minimize electrical hum from the activity of the logic board's integrated circuits. Guess what? Support for WMA files is built-in!

LITHIUM-ION BATTERY The lithium-ion battery in today's iPods replaces the thin, moldable lithium-polymer that performed so poorly in the original design. You can squeeze more than 16 hours of playback from it if you keep the backlight off and don't constantly change tracks (which requires the hard drive to spin up again).

CPU Motherboard, CPU, audio decoder, image decoder, display driver, and traffic cop are all rolled into PortalPlayer's PP5020, a single chip about the size of a square M&M. All this processing muscle comes from two ARM7 processors with 8KB of cache, plus 32MB of SDRAM for caching music to minimize hard drive use.

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MINI PREVIEW

LOCATIONFREE TV

Sony jumps into the streaming audio-video game

On the road, but desperate for your *Desperate Housewives* fix? Sony has two new products that let you watch TV anywhere there's an Internet connection.

Dubbed LocationFree TV, Sony's LF-X11 is a 12.1-inch touch-screen LCD with built-in Ethernet and wireless (802.11a/b/g) network adapters. It plays audio and video streamed from the company's LF-PK1 Player Pak base station.

The Player Pak is similar to Sling Media's Slingbox (reviewed on page 92). Plug it into your router and home-entertainment system, and you can watch TV on any PC with broadband access. The 5-pound portable touch screen is especially intriguing. Although its resolution is limited to 800x600, it comes with two features you won't find on any PC: a 3D digital comb filter and Faroudja's excellent motion-adaptive DCDi (directional correlation de-interlacing) algorithm in hardware.

The LF-X11 display will run on either a Li-ion battery or AC power, so you can use it almost anywhere. You can also plug in a keyboard, but Sony has designed its built-in email client, mini web browser, and photo-album software to take advantage of its touch-screen attributes. Tapping a stylus on the onscreen universal remote control, for instance, sends commands over the network to the IR blaster, so you can control your TV tuner or DVD player from afar. Or you can load a digital photo (stored on a USB thumb drive or MemoryStick) into the photo-album software, edit and annotate it, and then send it to friends and family using the built-in email client.

Sony tells us the base station will use a MIMO-like but Sony-proprietary dual-band MAT (multi-directional audio and visual transmission) antenna, and that it will automatically switch between the 2.4- and 5GHz frequency bands in order to minimize interference with other wireless devices in the home.

The LF-PK1 base station will sell for $350. The LF-X11 LCD monitor, including one base station, will go for $1,500.

Preview

All in Wonder X1800

ATI promises TV fans won't have to wait for its next-gen tuner

When it comes to ATI's All in Wonder videocards, buyers have always had a long wait before the company's latest GPUs made their way into its TV tuner cards. ATI promises that won't be the case this time around: Its All in Wonder X1800 should be on store shelves right about now.

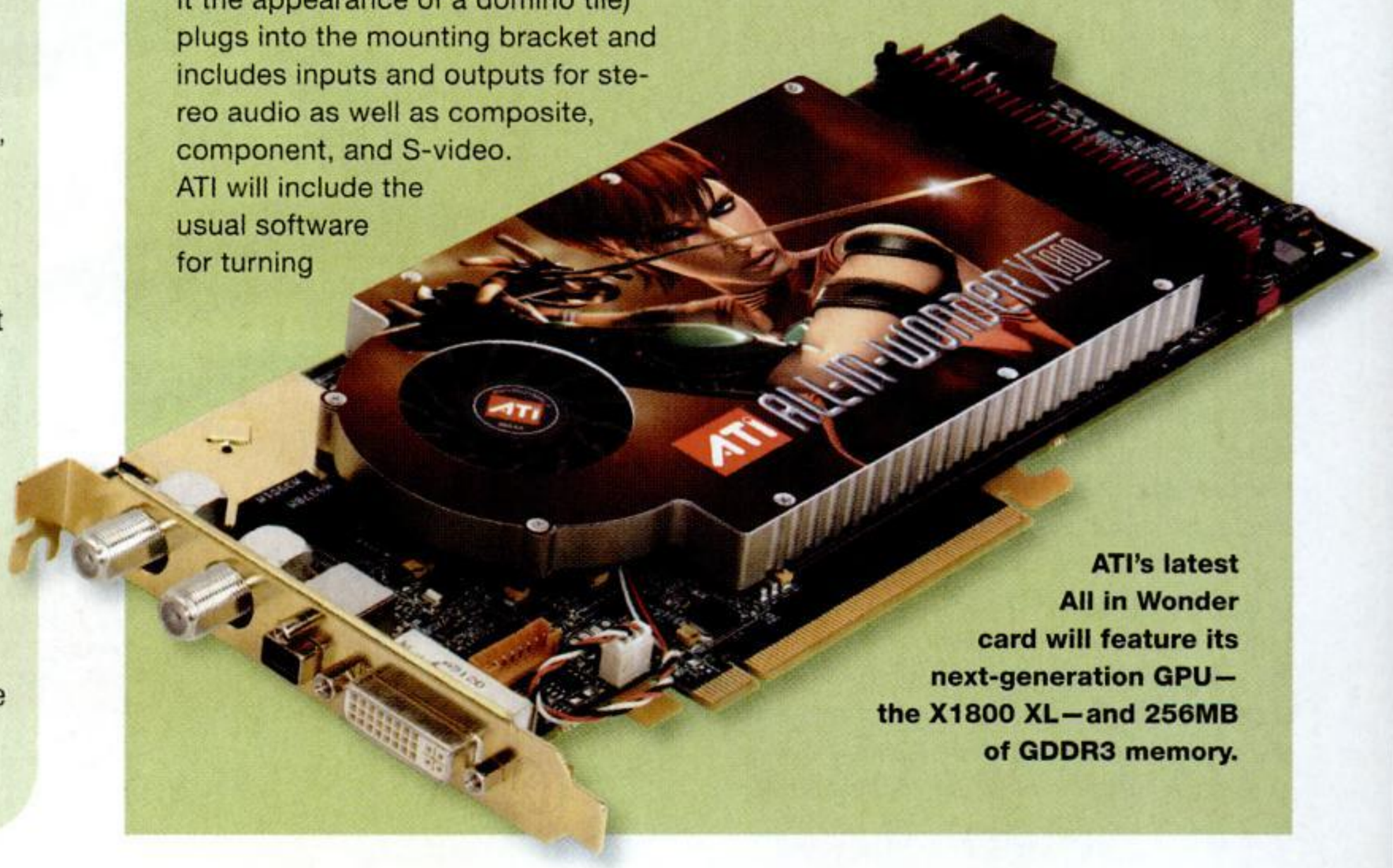
The new card will be based on ATI's 16-pipe Radeon X1800 XL and will be populated with 256MB of GDDR3 memory; GPU and memory will both be clocked at 500MHz. The single-slot card will have a single TV tuner on board, and it will be available only in a PCI Express formfactor.

As with previous All in Wonder cards, video will be processed via a five-stage pipeline through two components: ATI's Rage Theater chip will be used to capture and encode video from a TV antenna, cable connection, or ATI's "domino" connection block (more on this in a moment), and the Radeon X1800 XL will decode, process, and then display the video.

The domino connection block (so called because its formfactor lends it the appearance of a domino tile) plugs into the mounting bracket and includes inputs and outputs for stereo audio as well as composite, component, and S-video. ATI will include the usual software for turning your PC into a digital video recorder, as well as for capturing and editing video so you can create your own home movies. You'll be able to control many of your PC's functions from across the room with ATI's RF Remote Wonder Plus—which will even function as a wireless mouse pointer.

Although ATI has made a lot of noise about its support for real-time H.264 video decoding, this feature won't actually be available when the card ships (not that it really matters, because the HD-DVD and Blu-ray drives that will use this high-definition video-compression algorithm aren't available either). ATI promises the feature will be enabled in a future driver release, currently scheduled for February 2006.

The $500 X1800 XL will be followed by the $200 All in Wonder 2006 PCI Express. The cheaper board will be based on ATI's X1300 XL and will be compatible with the Remote Wonder, but the remote won't be included in the box. Both cards will operate under Windows XP Home, Professional, and Media Center Editions.



ATI's latest All in Wonder card will feature its next-generation GPU—the X1800 XL—and 256MB of GDDR3 memory.

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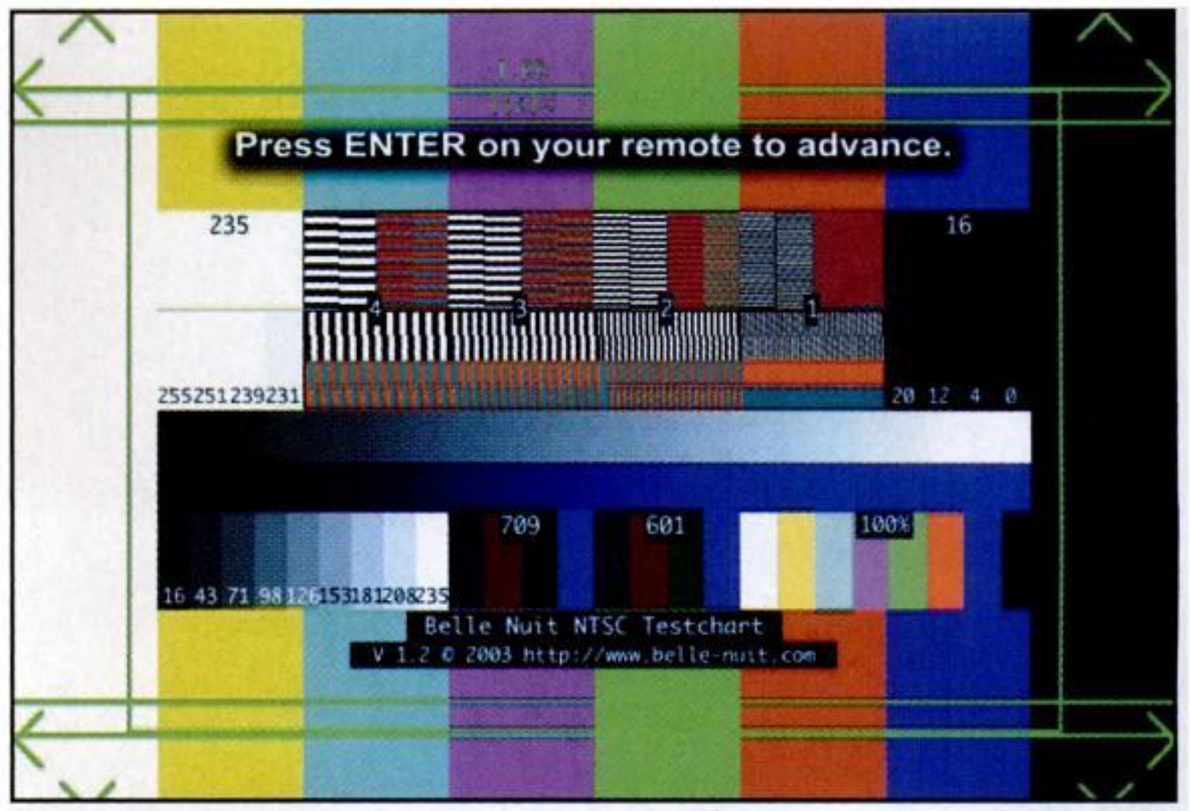
MICHAEL **BROWN**

Explores the HQV Benchmark DVD

Introducing the latest weapon in our videocard benchmarking arsenal



We use Silicon Optix' *HQV Benchmark DVD* to torture-test a videocard's capacity for accurately decoding MPEG-2 video.

When I measure a videocard's performance, I use a variety of games and games-oriented synthetic benchmarks to test a card's capacity for real-time 3D-rendering. But because I know *Maximum PC* readers are much more than avid game players, I've been looking for a benchmark that will enable me to objectively measure a videocard's *video* performance, too. The *HQV Benchmark DVD* delivers just what I need.

Silicon Optix, in conjunction with several home-theater magazines, developed this disc for measuring the performance of high-definition televisions, DVD players, and video-processing gear, but it's proven to be an eye-opening benchmark for videocard testing, too. (Silicon Optix, by the way, is a fabless semiconductor manufacturer specializing in video-processing technology for the consumer, broadcast, and post-production television markets. Because the company is not in the videocard business, I don't need to worry that its benchmarks are skewed toward any one GPU manufacturer.)

The *HQV Benchmark DVD* consists of 12 acid tests based on real-world scenarios. It presents videocards with a very tough MPEG-2-decoding obstacle course involving de-interlacing, motion correction, noise reduction, film cadence detection, and detail enhancement. I use the Color Bar/Vertical Detail test to evaluate color saturation and the card's capacity for vertical resolution. Several tests measure the videocard's ability to remove scan-line artifacts—such as jagged edges on diagonal lines—while de-interlacing video. Other sequences help me analyze the videocard's ability to display fine detail, accurately reduce visual noise, and properly detect the cadences that have been used to convert film, animation, and anime to video.

The disc provides explicit instructions on what to look for in each video sequence. It also displays examples of what passing and failing sequences look like. Thanks to these characteristics, I've found the test results to be repeatable and therefore reliable.

Right before we sent this issue to press, however, Silicon Optix informed me that my HQV scores seemed too high. To resolve the issue, Silicon Optix agreed to loan us a DVD player that uses the company's Realta HQV decoding engine: Denon's $3,500 DVD-510. According to Silicon Optix, the DVD-510 scores a perfect 130 and will serve as a reference point for our tests. I'll let you know the results in our next issue. Meanwhile, if you'd like to run these tests on your own rig, you can purchase the $30 disc at **www.hqv.com/benchmark**.

Logan Decker

ON WHAT IT TAKES TO TEST MEDIA PLAYERS

Trust your ears, trust your eyes

No digital media player can satisfy everyone. Even the exquisite iPod Nano is pissing off folks—justifiably—with a surface so delicate it can be marred by harsh language. And the spacious screens on high-end portable video players look ridiculous to someone who just wants a pocketable player that doesn't require its own duffel bag. What we can all agree on, however, is that sound and video quality are paramount.

There's no reason to whip out the heavy machinery to distinguish one player from another—we're dealing with compressed audio here, folks. So after covering the basics (codec support, battery life, viewing angle, etc.), I put on Shure's E4c earbuds ($300, **www.shure.com**) and listen to five audio tracks and three videos of different genres, and I repeat the tests for all supported codecs. If there's any doubt, I also perform audio A/B testing with a pair of studio monitors. I've enjoyed most of these tracks for more than a decade, and the music is so imprinted upon me that if a single hi-hat tap is muted, I hear it. And *that's* what's important, because what might seem to be a minor compression artifact could ruin the ragged complexity of a distorted guitar, or smear the nuances of a tasty Chopin Nocturne. The same can be said about fast-motion and deep-black reproduction in video players. Conveniently, chapters 12 and 13 from the *Crouching Tiger, Hidden Dragon* DVD have both elements, and I use this video to check for blurring and blockiness across all supported codecs.

Just keep in mind that no matter how good your MP3 or portable video player is, it's only as good as the encoding job you've done compressing your media. Want to encode better? Check out the forums at **www.hydrogenaudio.org** and **www.vcdhelp.com** to pick up some tips from the truly obsessed.

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How We Test

Real-world benchmarks. Real-world results

Computer performance used to be measured with synthetic tests that had little or no bearing on real-world performance. Even worse, when hardware vendors started tailoring their drivers for these synthetic tests, the performance in actual games and applications sometimes dropped.

At *Maximum PC*, our mantra for testing has always been "real-world." We use tests that reflect tasks power users perform every single day. With that in mind, here are the six real-world benchmarks that we use to test every system we review.

SYSmark2004: This is the most comprehensive application benchmark available, using no fewer than 19 applications to measure the time it takes for the PC to complete to real-world computer-intensive tasks. Our *SYSmark* score is a composite based on the time the test takes to complete several different types of tasks.

Adobe Premiere Pro: The leading nonlinear digital-video editor has recently been retooled with more support for multi-threading. We take a raw AVI file, add several transitions and a soundtrack, export it to a generic MPEG-2 file, and then report the time the script takes to complete.

Adobe Photoshop CS: We don't subscribe to Apple's half-baked idea that running one filter test in *Photoshop*, in one certain way, at a particular time of day provides an accurate measure of performance. Instead, we take a high-resolution image and throw it through just about every filter available in *Photoshop CS* at it. Our score is the time it takes for the script to complete.

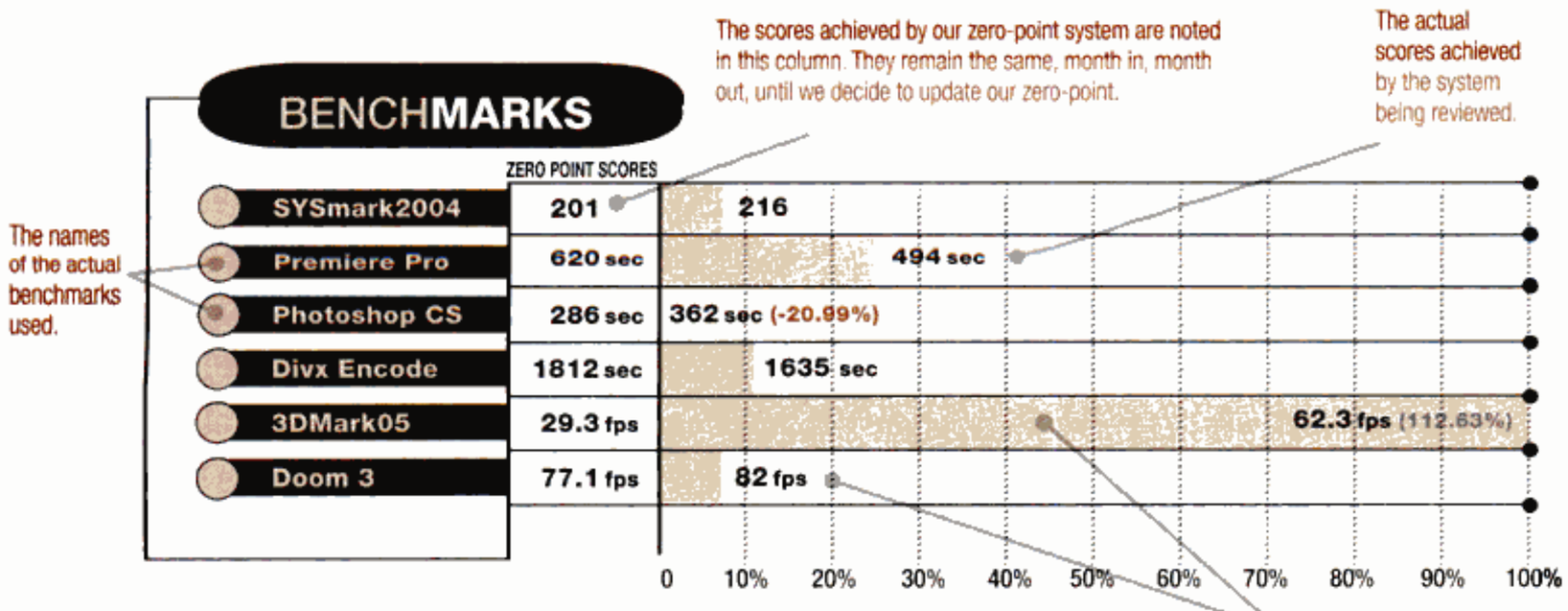
Divx Encode: Video encoding is today's time-suck. We transcode a short movie stored on the hard drive from MPEG-2 to Divx using *#1 DVD Ripper.* We report the length of time the process takes to complete.

3DMark05: After ranting about real-world tests, you might be surprised to find this "synthetic" graphics test in our suite. *3DMark05*, however, has proved to be the standard by which graphics cards and PCs that run them are judged. Instead of reporting a meaningless composite score, we run the third test at 1280x1024 with 4x antialiasing and 4x anisotropic filtering, then report the frame rate. Our zero-point system with SLI can't even break 30 frames per second.

Doom 3: Id's hugely popular game is a dark, scary, and serious test of PC horsepower. We run this game with 4x antialiasing and 4x anisotropic filtering, at 1600x1200 resolution, and report the frame rate.

How to Read Our Benchmark Chart

Maximum PC's test beds double as zero-point systems, against which all review systems are compared. Here's how to read our benchmark chart.


The scores achieved by our zero-point system are noted in this column. They remain the same, month in, month out, until we decide to update our zero-point.
The actual scores achieved by the system being reviewed.
BENCHMARKS
ZERO POINT SCORES
The names of the actual benchmarks used.
SYSmark2004
201
216
Premiere Pro
620 sec
494 sec
Photoshop CS
286 sec
362 sec (-20.99%)
Divx Encode
1812 sec
1635 sec
3DMark05
29.3 fps
62.3 fps (112.63%)
Doom 3
77.1 fps
82 fps
0
10%
20%
30%
40%
50%
60%
70%
80%
90%
100%
Our zero-point reference systems uses a 2.6GHz Athlon 64 FX-55, 2GB of DDR400 Crucial Ballistix RAM, two nVidia GeForce 6800 Ultra cards in SLI, a Maxtor 250GB DiamondMax10, a Sound Blaster Audigy 2 ZS, a PC Power and Cooling TurboCool 510 Deluxe Express, and Windows XP Pro with SP2.
Every month we remind readers of our key zero-point components.
The bar graph indicates how much faster the review system performed in respect to the zero-point system. If a system exceeds the zero-point performance by more than 100 percent, the number will appear to the right in parentheses.

Our monthly category-by-category list of our favorite products. New products are in red.

High-end videocard:
eVGA e-GeForce 7800GTX KO ACS3
A tick faster than our previous favorite, Asus 7800GTX, the KO occupies just one slot

Midrange videocard:
GeForce 6800GT

Soundcard:
Creative Labs X-Fi XtremeMusic

7,200rpm SATA:
Western Digital WD400KD
Faster, quieter, cooler, and cheaper than the previous top drive, what more could you want?

External backup drive:
Western Digital Dual-Option Media Center 320GB

Portable USB drive:
Seagate Portable External Hard Drive 100GB

DVD burner:
Plextor PX-716A

Widescreen LCD monitor:
Dell 2405FPW

Desktop LCD monitor:
Dell 2001FP

Socket 939 Athlon 64 mobo:
Asus A8N-SLI Deluxe

Socket 775 Pentium 4 mobo:
Asus P5ND2-SLI

Portable MP3 player:
Apple iPod 60GB

Photo printer:
Canon i9900

5.1 speakers:
M-Audio Studiophile LX4 5.1 (LX4 2.1 with 5.1 Expander System)
The Studiophiles are pricey, but worth it if you want the ultimate in speakers

2.1 speakers:
M-Audio Studiophile LX4 2.1
Reference speakers tend to sound flat, but not these babies

Mid-tower case:
Lian Li PCV-1100
We've moved the PCV-1100 from the full-tower to mid-tower category, where it should be

Full-tower case:
Thermaltake Armor

Games we're playing: FEAR, Brothers in Arms: Earned in Blood, X-Men Legends II, Indigo Prophecy, Quake 4, Dungeon Siege II, Battlefield 2

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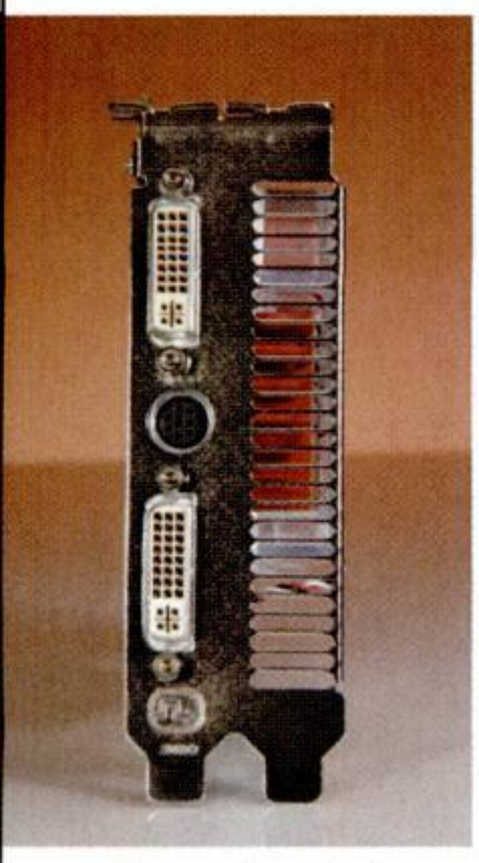
ATI Radeon X1800 XT

Too little, too late, too hot

With prices for natural gas and home-heating oil spiraling out of control, upgraders looking for a hot new videocard will want to take a look at ATI's new Radeon X1800 XT. This card generates so much heat it could replace a small furnace.

OK, we're exaggerating. But the X1800 XT really *does* get warm. In spite of its high temperature, the X1800 XT is clearly superior to ATI's previous top-of-the-line part. For starters, the entire X1000 series finally supports Microsoft's Shader Model 3.0. This development should dissolve any reluctance game developers have had about embracing Shader Model 3.0, which should result in more visually sophisticated games hitting the market.



Screaming clock speeds require a loud, two-slot cooling solution.

ATI tells us its decision to manufacture the X1000 series of GPUs using a 90nm process enabled a dramatic increase in core clock speeds: the X1800 XT runs at a staggering 625MHz, compared with the Radeon X850 XT Platinum Edition's 547MHz core, and the 430MHz core on a stock GeForce 7800 GTX. But what's really astounding is the fact that ATI has cranked the clock on the memory to a blistering 750MHz.

When we reviewed nVidia's GeForce 7800 GTX back in our September issue, we quipped that "24 is the new 16, when it comes to pixel pipelines." ATI must not have gotten that memo, because the Radeon X1800 XT features only 16 pixel pipes. But then, perhaps it's not the number of pipes, but what a GPU *does* with those pipes that really matters. (Or maybe it's simply a matter of driving the whole enchilada at unheard-of clock speeds.)

ATI offers the X1800 XT with two memory configurations: 256MB for $500 and the $550, 512MB version reviewed here. When the 512MB version of the X800 XL shipped a few months back, ATI reps told us game developers were chomping at the bit to gain access to larger frame buffers. Although we're skeptical of that claim, the $50 price delta separating the 256- and 512MB versions is a smokin' deal.

ATI's new "ring bus" memory controller—a third feature common to the X1000 series—is almost more interesting than the GPU's process size. Rumors that had ATI's new GPUs boasting a 512-bit memory architecture were only half right: As implemented in the X1800 cards, the memory controller is surrounded by two 256-bit rings. Data from read and write operations runs in opposite directions around these rings, arriving at ring "stops" (one for each pair of memory channels) that are linked directly to the chip's memory interface. ATI maintains that this design enabled an increase to memory clock speeds while simultaneously reducing latency. Be that as it may, GDDR3 memory is GDDR3 memory, so we'll be watching closely to see if ATI can actually acquire enough 750MHz chips to satisfy demand.

So what about performance? In our game benchmarks, the X1800 XT edged past XFX's GeForce 7800 GTX on four out of seven tests. Fans of *Doom 3* (and *Quake 4*, and all the other games that will be based on that engine), however, will want to consider this card's poor showing with that game. Aside from the disappointing *Doom 3* score, the card performs well. If ATI can do this well with just 16 pipes, imagine what it could have done with a 24- or 32-pipe processor.

We're severely disappointed with this card's video performance: ATI seems to have taken one step forward and a step-and-a-half back. The step forward is color saturation that's clearly superior to that of both ATI's previous-generation cards and nVidia's latest offering. The HQV composite score of 51, on the other hand, is 14 points *lower* than what ATI's X850 XT Platinum Edition earned in the videocard roundup we published in November (and it's a whopping 32 points lower than that of the 7800 GTX). What happened? The X1800 XT actually performed dramatically better on most of these benchmark tests—including jaggies compensation and 3:2 pull-down detection—but when it

Aside from the white heatsink, ATI's Radeon X1800 XT looks amazingly like ATI's X850 XT Platinum Edition.

SPECS

GPU	ATI Radeon X1800 XT
PIXEL PIPELINES	16
VERTEX SHADERS	8
MEMORY	512MB GDDR3
MEMORY INTERFACE	Dual 256-bit
CORE CLOCK	625MHz
MEMORY CLOCK	750MHz

BENCHMARKS

	ATI X1800 XT	XFX 7800 GTX	ATI X850 PE
DOOM3 (FPS)	43.2	**56.7**	40.2
FAR CRY (FPS)	**103.4**	84.3	87.1
HALO (FPS)	107.8	**107.9**	80.2
3DMARK05	**9,029**	8,054	6,468
3DMARK03	16,654	**16,898**	13,170
3DMARK03 GAME 2 (FPS)	**46.4**	37.0	28.4
3DMARK03 GAME 4 (FPS)	**60.0**	54.9	41.1
HQV SCORE	51	**83**	65

Best scores in each category are bolded. All benchmarks are run on our Athlon FX-55 test system, which includes an nForce4 SLI motherboard and 2GB of DDR SDRAM. Halo 1.06 tested at 1600x1200 with sound disabled. Doom 3 tested at High Quality 1600x1200, 4x AA. Far Cry 1.31 and 3DMark 2003 Game2 and Game4 are tested at 1600x1200, 4x AA, and 8x aniso. 3DMark 2003 and 3DMark 2005 are run using default settings. HQV Score is derived from the HQV Benchmark DVD, which measures the videocard's performance displaying DVD movies.

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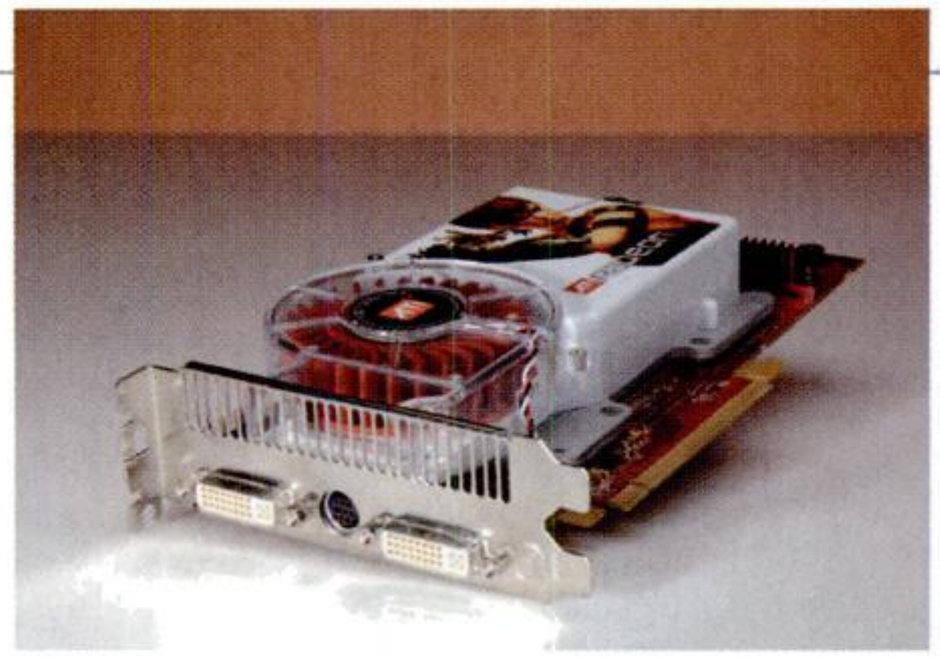
came to the film-cadence tests, ATI's new card failed every test except one.

As for the rest of ATI's much-hyped Avivo video technology, we're left wondering if it's a lot of smoke and mirrors, or if ATI just hasn't finished implementing everything in its device driver. At the time of this review, ATI told us that only two DVD-player programs—Cyberlink's *PowerDVD* and Intervideo's *WinDVD Platinum*—were capable of fully tapping the X1800 XT; and even then, both players required Registry tweaks. Microsoft's *Windows Media Player*, we were told, still had "issues" with hardware acceleration at high resolution.

The X1800 XT is a promising card for games, but in light of its disappointing video performance, coupled with the fact that CrossFire Edition versions of the card weren't available at press time, it's difficult for us to get very excited about it right now.

—MICHAEL BROWN



Spend an extra $50 and you can get a Radeon X1800 XT with a mammoth 512MB frame buffer.

RADEON X1800 XT

MEXICAN VANILLA

Slightly faster than a single nVidia 7800 GTX.

MEXICAN PRISON

Intensely hot card requires a two-slot cooler; lousy video performance; no CrossFire Edition (yet).

8

$550, www.ati.com

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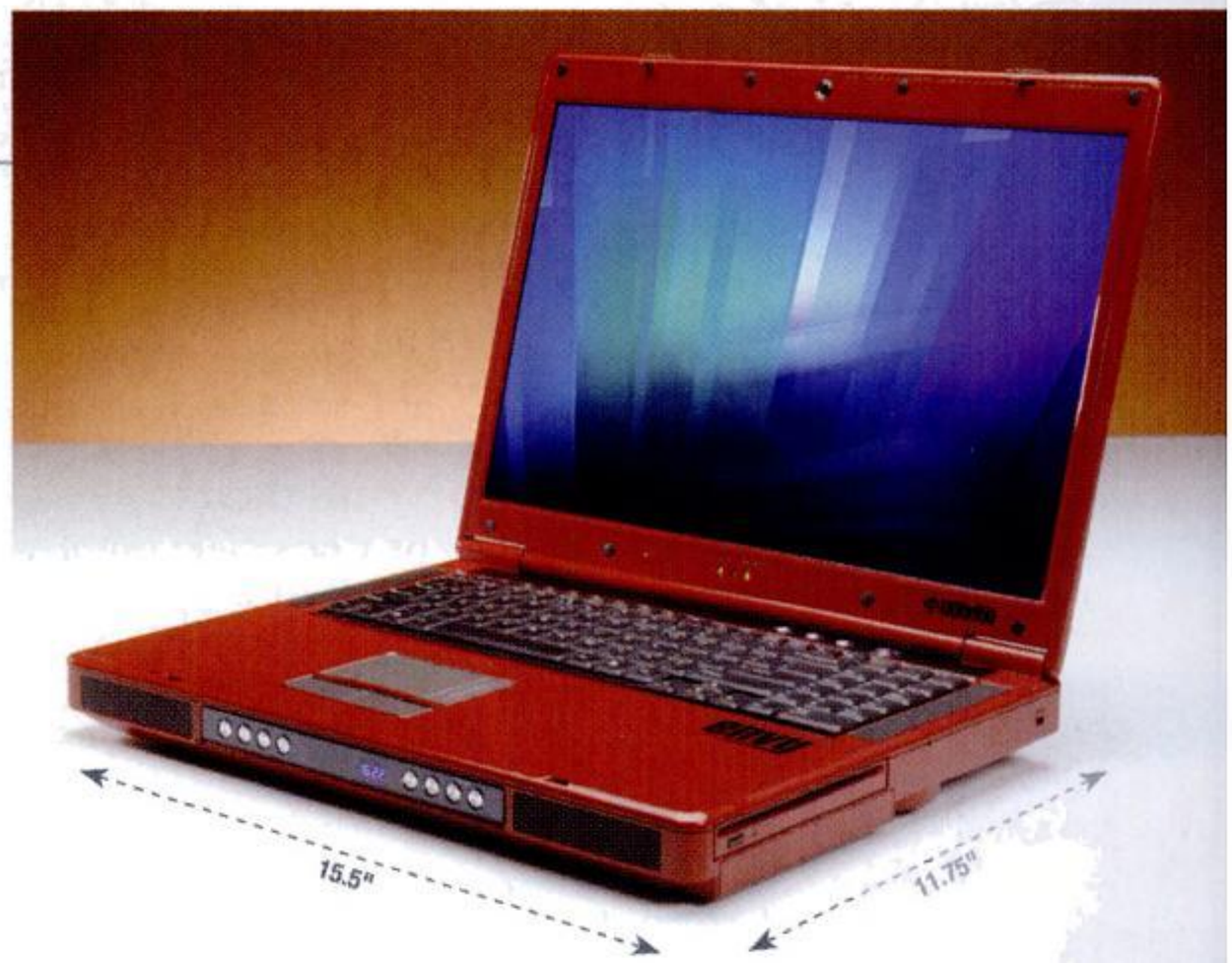
Voodoo Envy Hu:703

The Envy puts a hex on gaming benchmarks



The Voodoo Envy Hu:703 can make some desktop machines beg for mercy.

Despite all the chest-beating about notebook computers replacing desktops for gaming, it's never really been anything more than hot air from mobile enthusiasts drunk on Kool-Aid.

That's because notebooks have always lagged behind in graphics. If a desktop "ultra" version features a 16-pixel pipeline chip, the notebook version features 12 pipes. If the desktop version is clocked at 400MHz, the mobile version is clocked at half that.

That second-class status is finally shed with the Voodoo Envy Hu:703, thanks to its state-of-the-art GeForce Go 7800 GTX graphics part. nVidia's new mobile graphics chip is damned close to its desktop brethren in specsmanship and marks a new age in graphics performance. Like its desktop counterpart, the GeForce Go 7800 GTX has a 24-pixel pipeline part. It's also just a hair off in clock speeds at 400MHz core and 550MHz DDR memory, versus 430MHz and 600MHz DDR RAM on the desktop cards. There's no SLI of course, but nVidia says it's a possibility down the line, even in a laptop.

Voodoo matches the Go 7800 GTX with a beautifully painted and brutally heavy notebook. Inside the massive chassis there are few surprises—RAID 0, A/B/G wireless, and a 17-inch screen. The Envy's 3.6GHz desktop P4 660 can even run a 64-bit OS. None of the notebooks we reviewed in our July 2005 roundup could do that. If you read our July roundup, you probably recognize the chassis of the Envy Hu:703, because it's pretty much the same Sager chassis that Alienware, Cyberpower, and Hypersonic submitted to us. Voodoo, however, opted for a Matshita slot-fed DVD burner, which is an improvement over the pop-out drive trays of the others. We don't think the screen is an improvement, though. The 17-inch monitor in the Envy sports an aggressive anti-glare coating that almost gives the screen a frosted-glass look—it can be very distracting.

Its flaws are a shame, as the Envy is clearly the fastest gaming notebook we've tested. Compared with the Alienware and Dell machines from July, the 7800 GTX-equipped Envy is smoking fast. In *3DMark05*, it's about 38 percent faster than the Mobility Radeon X800 XT Platinum Edition in Alienware's 51M and about 42 percent faster than the GeForce Go 6800 Ultra in Dell's XPS (both Alienware and Dell now offer the 7800 part, however). In *Doom 3*, the Envy Hu is about 33 percent faster than the Alienware and 34 percent faster than the Dell. But in applications, the Envy gets pushed out of the way by the 3.8GHz P4 in the Alienware. Megahertz still matters for some things.

Speed isn't everything, though. You probably know that we don't think the P4-based super notebooks are the wisest selections. They're heavy and super hot. And we mean uncomfortable, sterility-inducing hot. The Envy is no exception. The vent along the left side of the notebook could double as a hand-dryer in the men's bathroom at Wal-Mart. Battery life is also disappointing. With *3DMark03* looped, we got an unspectacular 51 minutes of run time. Most people who buy this class of notebook obviously aren't looking for portability and they're probably not looking for battery life either. They're looking for all-out performance, which the Envy delivers in spades.

While we're not sold on Pentium 4 for notebooks, consumers who know what they're getting and can live with it will find that the Envy is at the front of the class.

—GORDON MAH UNG

UNDER THE HOOD

BRAINS	
CPU	3.6GHz Pentium 4 660 (915P chipset)
RAM	2GB DDR2/533
LAN	Intel A/B/G 2915 wireless, Realtek RTL8169
HARD DRIVE	Two 60GB Hitachi 7,200 RPM TravelStar in RAID 0
OPTICAL	Matshita UJ-8455 CD-RW/DVD burner
BEAUTY	
VIDEO	nVidia GeForce Go 7800 GTX 256MB (400MHz core/550MHz DDR)
DISPLAY	17-inch (1920x1200@32-bit)
AUDIO CHIP	Realtek AC97
LAP WT	12.85 lbs
CARRY WT	15.4 lbs
BOOT: 25 sec.	DOWN: 15.4 sec.

VOODOO ENVY HU:703

RED RUM

Smoking-fast GeForce Go 7800 GTX is nearly on par with desktop part.

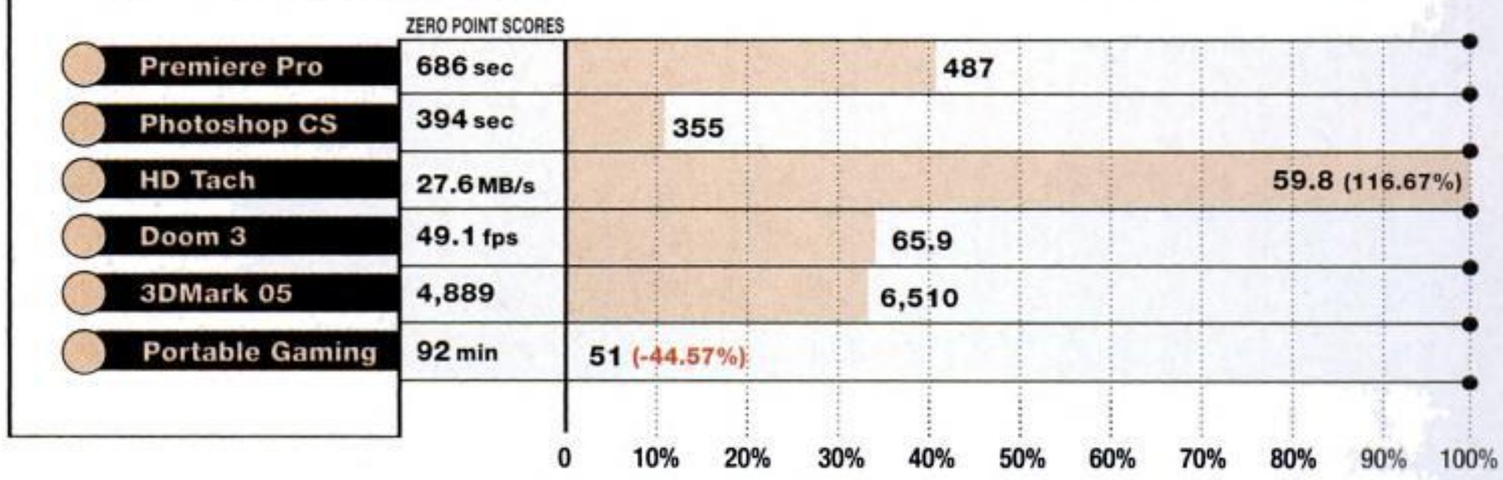
REDRUM

Can double as a waffle iron for your legs; anti-glare coating gives screen a shimmery look.

8

$5,000, www.voodoopc.com

BENCHMARKS



Our zero point is a Dell Inspiron XPS, with a 2.13GHz Pentium M, 1GB of DDR2/533 RAM, and a GeForce Go 6800 Ultra.

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DVD Burner Head Turners

Pioneer and HP rush the stage with faster, fancier optical drives

It's a tough era for CD and DVD burners. Optical drives have pretty much hit the ceiling on read and write speeds (with the exception of the seldom-used rewriteable variants and expensive double-layer discs), so it's not easy to get the attention of geeks who are busy selling their old Atari cartridges on eBay to afford a dual-videocard SLI rig. Find out how Pioneer and HP are sexing up ye olde red laser while we wait for high-capacity blue laser drives to arrive.

—LOGAN DECKER

The modest and plain Pioneer DVR-110DBK performs just as it looks.

PIONEER DVR-110DBK

Although Pioneer paved the way for consumer DVD burning with DVD-R, the format was eventually eclipsed by rival format DVD+R, which managed to ramp up write speeds much faster than DVD-R. So the feisty manufacturer has thrown a curveball by adding support for DVD-RAM. Well, sort of. The model we received for testing is the DVR-110DBK, which can read DVD-RAM discs (without the protective cartridges, unfortunately), but can't write to them. The DVR-110, which should be available by the time you read this, will be able to read and write to DVD-RAM discs, making the additional format actually useful.

The bizarre read-only DVD-RAM support is not, to our dismay, augmented by wildly superior performance in reading and writing to the more familiar DVD-R/W and DVD+R/W formats. For example, it took 6:21 (min:sec) to write 4.25GB of data at 16x to a DVD+R disc, nearly a half-minute behind drives from BenQ and Plextor. We think the drive could have done better—it took nearly 20 seconds to "close" the disc, spinning up the disc several times during the process every time we tested it. It shouldn't have taken more than a few seconds to do so. Writing to DVD-R took even longer at 6:33, which is humiliating when you consider that it's Pioneer's own format. While the drive is rated for 8x double-layer burning in both formats, it couldn't "overspeed" our 4x Verbatim media, and managed just a ho-hum 18:02 writing 7.5GB of data to 8x media. Although Pioneer will no doubt shine up the firmware to support a wider range of media, there's simply not much else about the DVR-110 to boast about to your friends, family, or pets.

PIONEER DVR-110DBK

BABIES
Competent drive with DVD-RAM read support, and much improved software.

RABIES
Behind-the-curve speeds, and it's rather noisy burning to DVD at high speeds.

6

$90, www.pioneerelectronics.com

HP DVD740I

Instead of allowing you to read from, but not write to, a minor-league DVD format, HP decided to throw in LightScribe to spice up this burner. That's no surprise as HP invented the cool disc-labeling technology.

The dvd740i whipped Pioneer's DVR-110 in just about every event, most notably writing 4.25GB of data to a 16x DVD+R disc, completing the task in an astonishing 5:35 (min:sec), and beating Plextor's PX-716A by a hearty 15 seconds! Burning 7.5GB to a double-layer DVD+R disc was accomplished in a tidy 16:01, easily reaching the upper echelons of double layer-burning optical drives, and the drive was also particularly swift ripping a DVD-Video.

HP's dvd740i might take a half hour to print complex images, but we just can't get enough of the party-making LightScribe technology.

Although LightScribe is a notoriously time-consuming method of labeling your discs, HP has reduced the time it takes to print a complex image at the best quality setting; the dvd740i forked over our disc in 28:48, 10 minutes less than it took to do the same with our first LightScribe drive. And because LightScribe doesn't require babysitting, you can just pop the disc in and go out to lunch.

HP DVD740I

BUMBLEBEES
Fast burner; LightScribe labeling; ideal size for small formfactor cases.

SCABIES
Limited overspeeding support and relatively high access times hold the drive back.

8

$120, www.hp.com

BENCHMARKS

	PIONEER	HP
CD BENCHMARKS		
WRITE SPEED AVERAGE	30.27x	**30.41x**
READ SPEED AVERAGE	31.86x	**32.19x**
ACCESS TIME (RANDOM/FULL)	126ms/253ms	**114ms/192ms**
CPU UTILIZATION	6% (8x)	6% (8x)
DVD BENCHMARKS		
WRITE SPEED AVERAGE	11.58x	**11.94x**
READ SPEED AVERAGE	**9.36x**	7.57x
DVD-VIDEO EXTRACTION	6:26	**5:51**
ACCESS TIME (RANDOM/FULL)	148ms/240ms	**134ms/290ms**
CPU UTILIZATION	23% (2x)	**16% (2x)**

Best scores are bolded. The data CD burn test uses the bundled applications to create a 700MB CD-R. The single-layer data DVD burn test uses the bundled applications to create a 4.25GB disc. The double-layer data DVD burn test uses the bundled applications to create an 8.3GB disc. The DVD-Video extraction test uses a 6GB commercially stamped DVD. All test were performed uaing Verbatim media, except where noted.

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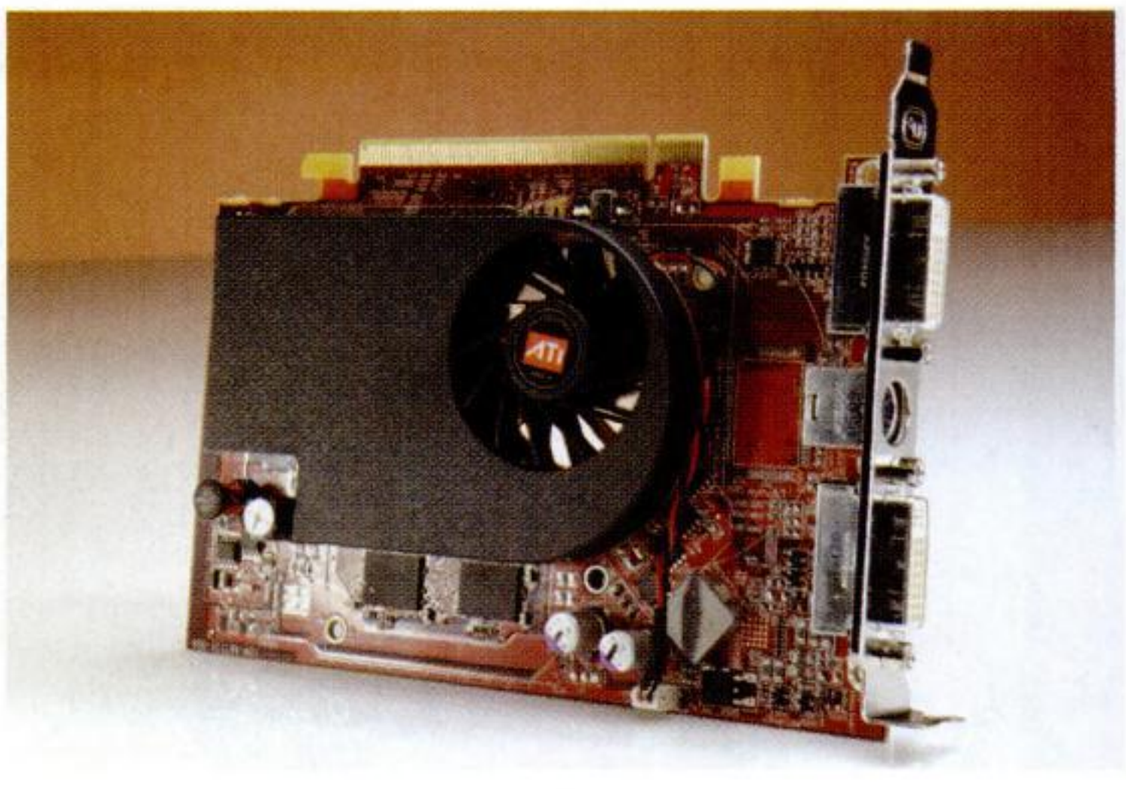
ATI Radeon X1600 XT

Marvelous engineering; mediocre performance



ATI's new Radeon X1600 XT delivers ho-hum gaming performance; its video quality is even less inspiring.

ATI has launched a variety of bang-for-the-buck GPUs this year; the 16-pipe X800 XL and the eight-pipe X800 GT are particularly impressive. In fact, if it wasn't for Shader Model 3.0 support, we'd have difficulty understanding why ATI even built this 12-pipe X1600 XT.

But ATI now has a whole family of GPUs that support SM 3.0, all of which are manufactured using a 90nm process that enables impressive core clock speeds—in this case, 590MHz. The entire X1000 series also features an innovative "ring bus" memory architecture that enables ATI to hyper-clock the 256MB of GDDR3 memory on the X1600 XT to the tune of 690MHz. Despite these high speeds, this card requires only a single-slot cooler (the appeal of which is severely watered down by a very noisy fan).

Aside from feats of engineering, what has ATI wrought with the X1600 XT? Not much that we're impressed with. In our real-world benchmark tests, this card's performance was akin to nVidia's GeForce 6800 and ATI's X800 XL. That means it falls well behind cards based on nVidia's slightly more-expensive GeForce 6800 GT, and it's leagues behind the much-more costly GeForce 7800 GTX.

ATI's reference-design X1600 XT squeaked past the Radeon X800 GT and the GeForce 6800 on most scores, but ATI's mediocre OpenGL support enabled the nVidia card to outperform ATI by more than four frames per second in *Doom 3*. Move into 16-pipe territory, and both nVidia's 6800 GT and ATI's own X800 XL give the X1600 XT the beat-down.

The lesson here is clear: When it comes to GPUs, ground-breaking manufacturing processes and high clock speeds are no substitute for an abundance of parallel pipelines.

—MICHAEL BROWN

ATI RADEON X1600 XT **6**

$250, www.ati.com

BENCHMARKS

DOOM3 (FPS)	20.3
FAR CRY (FPS)	36.2
HALO (FPS)	47.1
3DMARK05	5,273
3DMARK03	9,632
3DMARK03 GAME 2 (FPS)	16.5
3DMARK03 GAME 4 (FPS)	21.5
HQV SCORE	51

Refer to the Benchmarks page at www.maximumpc.com for full testing details.

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ECS PF88 Extreme Hybrid

This mobo is unique, but it's performance is nothing special

Hybrid doesn't always mean good. That's what we realized after testing ECS' PF88 Extreme Hybrid motherboard, which lets you run either a Pentium 4 or an Athlon 64. Yes, you read that right, a combo board that lets you run *either* CPU. It's part of ECS' new master plan to prove it can make more than ultra-budget motherboards.

It's an odd tack, because the PF88 is budget priced at $85. Still, this board is jam-packed with features, such as a P4 LGA775 socket that supports 1066MHz FSB CPUs and dual-core procs. There are also four DDR2/667 RAM slots, two full-length PCI-E slots, three PCI slots, gigabit Ethernet, HD-compliant audio, FireWire, and a Silicon Image SIL3132 SATA 3G-capable RAID controller—a lot of hardware for the money. It really gets interesting when you factor in the board's EliteBus slot. For an additional $50, you get the special SIMA card, which features an Athlon 64-compatible Socket 939, two DIMM slots, and a SIS 756 core-logic chip. When the SIMA card is plugged into the EliteBus, the board disables the onboard Pentium 4 north bridge and hands control to the SIS 756 controller on the daughter board.

On paper it's intriguing. You buy a motherboard for one processor and upgrade to something else down the road (ECS has plans for a Pentium M SIMA board). But instead of being a really good Pentium 4 motherboard or a really good Athlon 64/FX motherboard, it's mediocre for either platform. We outfitted the PF88 with the same P4 CPU, videocard, drivers, and hard drive from our October Intel-vs.-nVidia chipset showdown (Head2Head). When that shootout was over, we wondered if core-logic chipsets even matter anymore. We now know they do. The PF88—with its dual SIS chipsets—is seriously lacking in hard drive speed, PCI Express bus speed, and memory bandwidth performance. In our hard drive transfer tests, the PF88 could only burst at 76MB/s second while the Intel/nVidia chipsets could reach into the 127MB/s range. Memory bandwidth was also about 19 percent slower, and the PF88's PCI Express data throughput was a sad 746MB/s versus the 1.2GB/s of the Intel and nVidia chipsets.

ECS' Frankenmobo uses a converter board to run either a Pentium 4 or an Athlon 64—poorly.

To switch from the P4 to the Athlon 64/FX mode, you need to install the included secondary BIOS chip in a second socket and pull a dozen jumpers. You then populate the SIMA card with your memory, CPU, and heatsink. You also have to move the ATX12V plug from the PF88 motherboard to the SIMA daughter card. The SIMA card will block one of the longer PCI-E slots when inserted but that's fine as the PF88 doesn't support any dual videocard modes. That's where the second full-length PCI-E slot comes into play. With the first one blocked, your PCI-E card goes into the second slot. You're supposed to be able to make the CPU switch without having to reinstall the OS, but we were forced to reinstall because of unexplained blue-screen errors.

The SIMA card is quite limiting. It has just two memory slots (versus four on a full mobo), and we had problems finding a heatsink small enough to fit the SIMA without hitting the RAM socket or the north bridge cooler on the motherboard. (Amazingly, the board was able to work with a Socket 939 FX-57, so we know it will support dual-core procs.) The board booted and ran like any Athlon 64 board, which is no small feat—it takes some serious engineering to get something like this to work.

But is it a hardware hack even worth doing? We don't think so. It makes far more sense to buy a board that's great at everything rather than accept the compromised performance of the PF88. And if you truly did switch from a P4 to an Athlon, you'd have to chuck your DDR2 RAM and buy DDR RAM, which just doesn't make sense to us. In the end, the PF88 is proof that just because you can build something doesn't mean you should.

—GORDON MAH UNG

BENCHMARKS

	PF88 IN P4 MODE	ASUS P4 P5ND2-SLI	PERFORMANCE DIFFERENCE	PF88 IN ATHLON 64 MODE
3DMARK2001 SE OVERALL	24,605	**26,709**	-8%	29,060
3DMARK05 CPU	5,062	**5,793**	-13%	7,745
QUAKE III	464 fps	**509 fps**	-9%	500 fps
HD TACH 3.01 BURST	76.3MB/s	**127.1MB/s**	-40%	85.8MB/s
SISOFT SANDRA 05 RAM BANDWIDTH	5,443MB/s	**6,697MB/s**	-19%	4,869MB/s
PCMARK2005 OVERALL	4,715	**5,021**	-6%	3871
PCMARK2005 MEMORY	4,421	**5,092**	-13%	WNR
PCMARK2005 GRAPHICS	6,025	**6,299**	-4%	6148
PCMARK2005 HARD DRIVE	3,964	**5,326**	-26%	2096
AQUAMARK GRAPHICS	11,805	**12,651**	-7%	13,770
AQUAMARK CPU	9,744	**11,720**	-17%	11,488
AQUAMARK OVERALL	73,516	**82,182**	-11%	86,088
3DD LOAD PCI-E PERFORMANCE	746MB/s	**1,296MB/s**	-38%	595MB/s

Best scores in the P4 category are bolded. How we tested: We used a 3.73GHz Pentium 4 EE, 1GB of Crucial Tech DDR2/667, a GeForce 7800 GTX, a Seagate 160GB Barracuda 7200.7, and Windows XP Pro SP2. For the Athlon 64 runs, we used an Athlon 64 FX-57 and 1GB of Corsair DDR400.

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PRIAPISM
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5

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Zalman VF700-Cu LED VGA Cooler

Cool, quiet, and SLI-ready

Though it's not visible in this image, the Zalman VF700's fan sports a swank blue LED that adds a tasteful dash of "mod" flavor to your videocard.

In the past we've been a smidge wary of aftermarket VGA coolers, but all that's changed now that we've tested the royally badass VF700-Cu cooler from Zalman. This kick-ass heatsink/fan (HSF) not only looks elegant with its solid-copper fins and sassy blue LED fan, it also offers performance that *blew us away*, especially considering how unbelievably quiet it is. This is one of those rare products that exceeded our expectations in almost every way possible.

Let's start with the VF700's installation, which was so easy even a blindfolded intern could have done it. In fact, on our Radeon X800 XT test card, it took longer to uninstall the stock cooler than it did to hook up the Zalman cooler—it's that simple. Still, we did encounter a slight annoyance. Your first task is to remove the stock cooler and attach the eight included RAM heatsinks on the card's RAM modules; the problem is that the damn things barely stick to the RAM modules, and constantly fall off during installation, which can be frustrating. Once the heat from the memory gets to them, however, they stick like glue. With that out of the way, the rest of the installation is a breeze and takes just a few minutes.

BENCHMARKS

	7700 "QUIET"	7700 "NORMAL"	STOCK COOLER
IDLE (C)	34	**32**	40
100% LOAD (C)	53	**47**	71

Best scores are bolded. All temperatures were measured via the card's onboard sensor and measured within the ATI Catalyst drivers. Idle temperatures were measured after 30 minutes of inactivity and full-load temps were achieved looping 3DMark 05 for one hour.

Thanks to the VF700's smart design and simple instructions, it's virtually impossible to damage the videocard's GPU during installation—indeed, our card survived the process totally unscathed. The icing on the VF700 cake are the two included power connectors: a 5V plug for "quiet" operation and a 12V part for "normal" mode.

As the benchmarks show, its performance was amazing using either setting. We were astounded to see a temperature drop of 20 C from stock, even when running in quiet mode, which is inaudible even with the case door removed. In normal mode the numbers were even better, although the VF700 emits just a bit of noise.

Aside from the flaky RAM heatsinks, this cooler is the answer to our VGA cooling dreams. And the fact that its low-profile makes it SLI-ready just sweetens the deal.

—JOSH NOREM

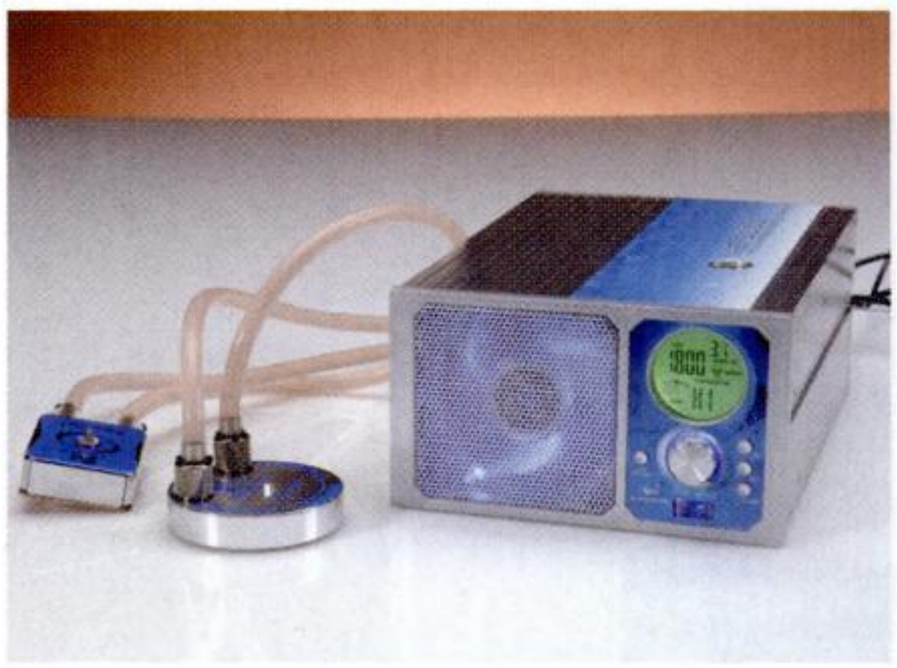
ZALMAN VF700-CU LED — **9**

$35, www.zalmanusa.com

MAXIMUM PC KICKASS

Kingwin AquaStar AS-3000

A decent way to dip your PC's toes in the water



The Aquastar is the first kit we've seen to offer both CPU and GPU cooling for less than $200.

This month Kingwin bravely wades into the water-cooling fray with a CPU- and GPU-cooling kit dubbed AquaStar. This kit can be set up as either an external unit or an internal kit that mounts inside two 5.25-inch drive bays. Although it performed adequately during testing and is a helluva bargain, our enthusiasm for it is tempered by the fact that the first kit we tested leaked water all over our test bench. A second kit was sent and it ran flawlessly, however.

The kit includes two aluminum water blocks (with copper bases), several sections of 1/8-inch tubing, and the radiator/reservoir/pump unit. Installation is simple: Every piece of tubing terminates in a fitting that screws onto the blocks' inlet and outlet ports, so it's just a matter of attaching the blocks (also incredibly easy), screwing on the tubing, and filling the reservoir. Once up and running, the AquaStar provides respectable cooling performance while remaining totally silent when the fans are set to low (1,400rpm). With the fans set to high (2,760rpm), performance is impressive, but still shy by a few degrees of the best we've seen.

BENCHMARKS

	AQUA STAR	STOCK COOLER
AMD FX-55		
IDLE		
FAN LOW (C)	41	N/A
FAN HIGH (C)	**34**	40
100% LOAD		
FAN LOW (C)	48	N/A
FAN HIGH (C)	**45**	54

*Best scores are bolded. All temperatures were measured via the onboard sensors, using the utilities provided by the motherboard manufacturer. Idle temperatures were measured after 30 minutes of inactivity and full-load temps were achieved running **CPU Burn-in** for one hour.*

A multi-color LCD (you can change the color to suit your mood) displays a wealth of useful information and can also sound an alarm when the system reaches a preset temperature threshold (which is adjustable) or if/when the water pump fails. The problem is that there's so much info on the screen that it's hard to read. Also, the whole kit has a "budget" look and feel to it, which isn't surprising given its rock-bottom price.

While we're impressed with the AquaStar's value—decent CPU- and GPU-cooling at a low price, we're knocking it a bit for the initial leakage and because its cooling performance isn't top-of-the-line.

—JOSH NOREM

KINGWIN AQUASTAR — **7**

$135, www.kingwin.com

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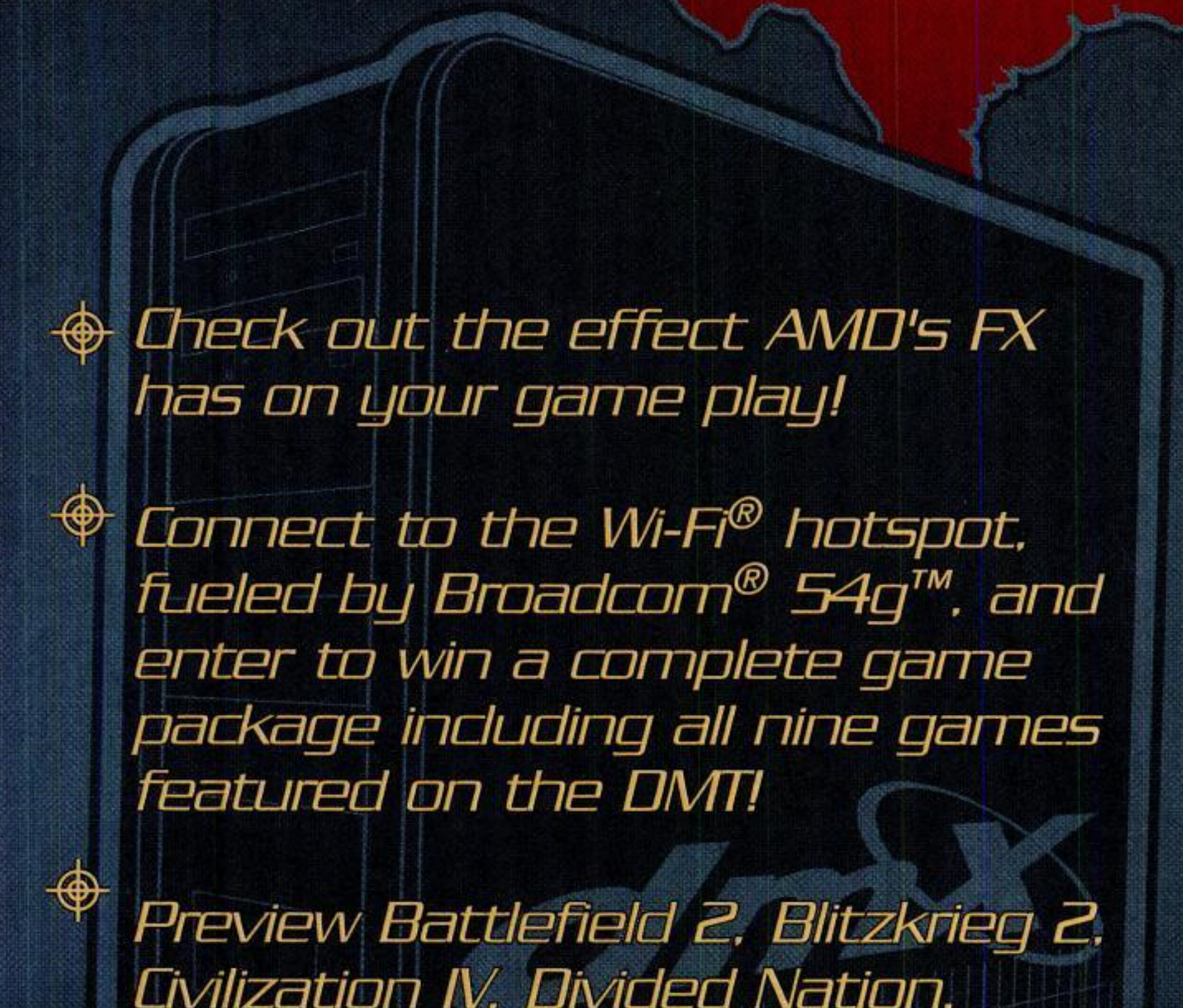

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Nov 25 - Dec 24, 2005
San Francisco, CA
Sony Metreon

January 11 - 15, 2006
Dallas, TX
Keystone Park Theatre

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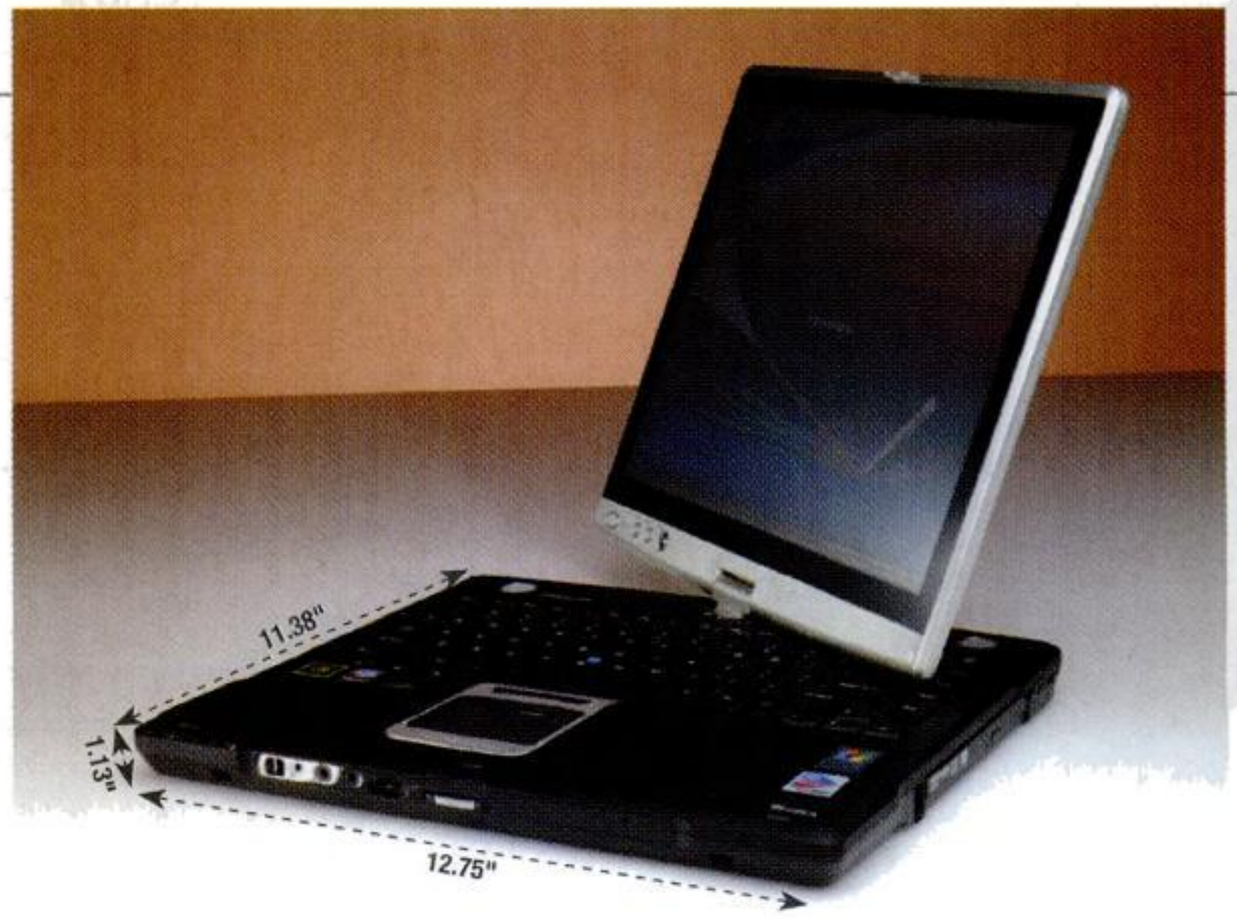
Toshiba Tecra M4 Tablet

A damn good laptop that does double duty



The Toshiba Tecra M4 delivers Tablet PC features with standard two-spindle notebook performance.

We really like Microsoft's concept of the Tablet PC. Whether we're taking notes in a meeting, web browsing on the couch, or working in bed, the Tablet, with its fancy touch screen and handwriting-friendly software, fits the bill perfectly. Unfortunately, until now, you had to sacrifice too much to get those conveniences: Most Tablets are underpowered, their screens are too small, and they lack an optical drive, to say nothing of a decent graphics processor. The Toshiba's Tecra M4 finally delivers Tablet PC functionality in an otherwise powerful mid-size notebook.

Toshiba made few sacrifices when building this rig. The Tecra boasts an Intel Pentium M 760 running at 2GHz, a PCI Express GeForce Go 6600 TE, and a double-layer DVD burner. Sure, we'd love to see another 512MB of memory push the total system RAM to a gig, but for the price, we can't complain too much.

Thanks to the 14.1-inch screen and a 1400x1050 native resolution, the Tecra surpasses all the other Tablets we've tested in terms of resolution and clarity. And thanks to the integration of Wacom's market-leading pen-input technology, the screen's sensor delivers better accuracy and better pressure sensitivity, in our experience. Your cursor goes exactly where you touch the screen! This might not seem like a particularly difficult task, but many Tablets we've tested in the past exhibit spotty calibration.

The Tecra's benchmark numbers are good for this class of notebook, although its performance pales in comparison with our zero-point rig—Dell's latest XPS gaming notebook. This Tablet certainly won't replace a desktop rig for heavy lifting—gaming or video encoding—but it can hold its own in typical office tasks, as our *Photoshop* and *Premiere* scripts show.

We dig some of the Tecra's special features, but not all of them. We like how the Tecra's integrated accelerometer detects sudden motion and will consequently park the hard drive's heads to minimize the damage from, say, a drop or rough jostling. You can even set the Tecra to execute a specific app when you shake the laptop or tilt it in one of four directions. We're less thrilled that the Tecra is equipped with the Trusted Platform Module (TPM) encryption chip. While TPM provides a much more secure way—via hardware—to encrypt any or all of the Tecra's contents, it's unclear how the proprietary part is going to figure into future digital-rights management schemes.

There are tons of small features that really highlight Toshiba's expertise in building laptops. We love being able to choose between the touchpad and the eraser nub for cursor control, as each is suited to different tasks. The integrated SD-card reader makes it easy to pull photos from your digicam, and the included speakers sound pretty good, at least compared with other integrated laptop speakers.

In notebook mode, the Tecra M4 is virtually indistinguishable from a standard notebook. But, rotate the screen 180 degrees and latch it down, and the Tecra becomes a beautiful, full-screen, handy Tablet. At 6.2 pounds, it's a tad heavier than most Tablets we've tested, but we'll happily tote around a little extra weight to have a full-powered laptop when we get to where we're going.

—WILL SMITH

UNDER THE HOOD

BRAINS

CPU	2.0GHz Pentium M 760 (915 chipset)
MEMORY	512MB DDR/533
LAN	Intel B/G 2200 Wi-Fi, Marvell 88E8053 Gigabit Ethernet
HARD DRIVE	80GB Fujitsu MHT2080BH
OPTICAL	Matsushita UJ-830S double-layer DVD burner

BEAUTY

VIDEO	nVidia GeForce Go 6600 TE (128MB)
DISPLAY	14.1-inch (1400x1050 @ 32-bit)
AUDIO CHIP	Analog Devices AD1981B
LAP WT	6.2 lbs
CARRY WT	7.2 lbs

BOOT: 32 sec. DOWN: 12 sec.

TOSHIBA TECRA M4 TABLET

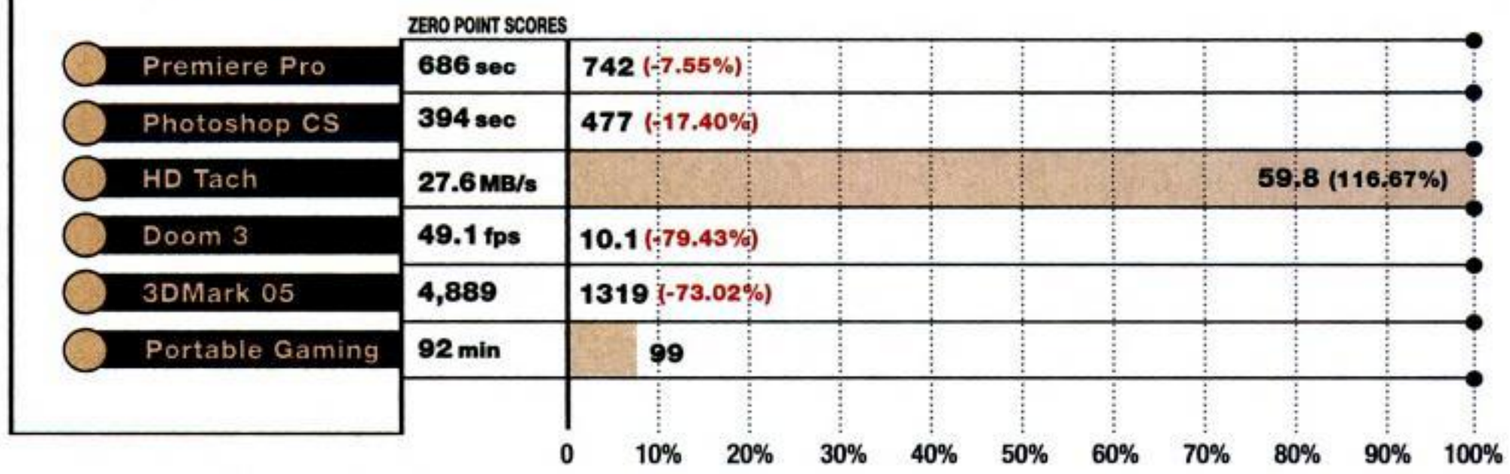
+ MONT BLANC
Tablet functionality without sacrificing screen space or performance.

– BIC
Only 512MB of RAM. Includes Trusted Platform Module.

9

$2,030, www.toshibadirect.com

BENCHMARKS



Our zero point is a Dell Inspiron XPS, with a 2.13GHz Pentium M, 1GB of DDR2/533 RAM, and a GeForce Go 6800 Ultra.

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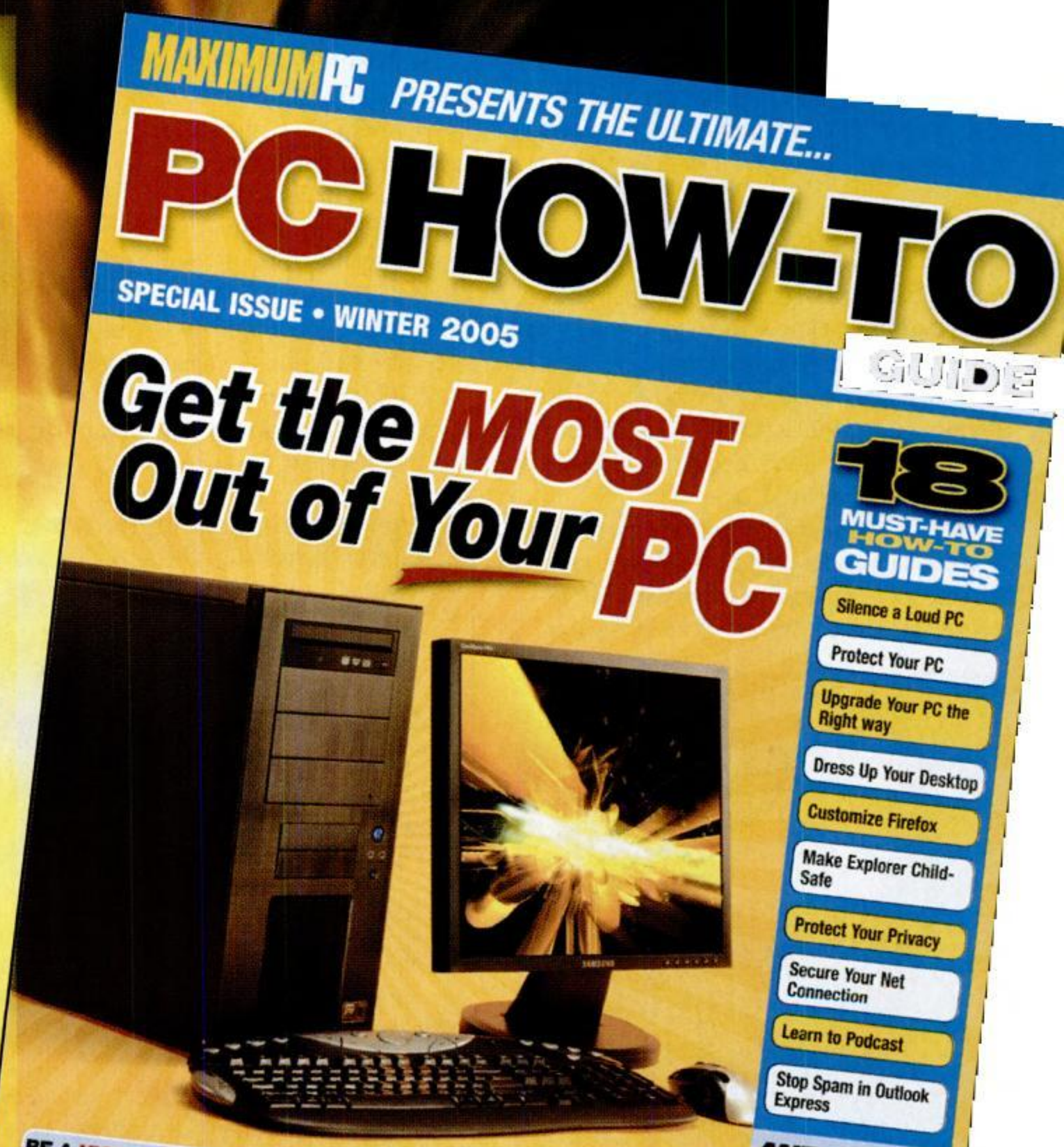
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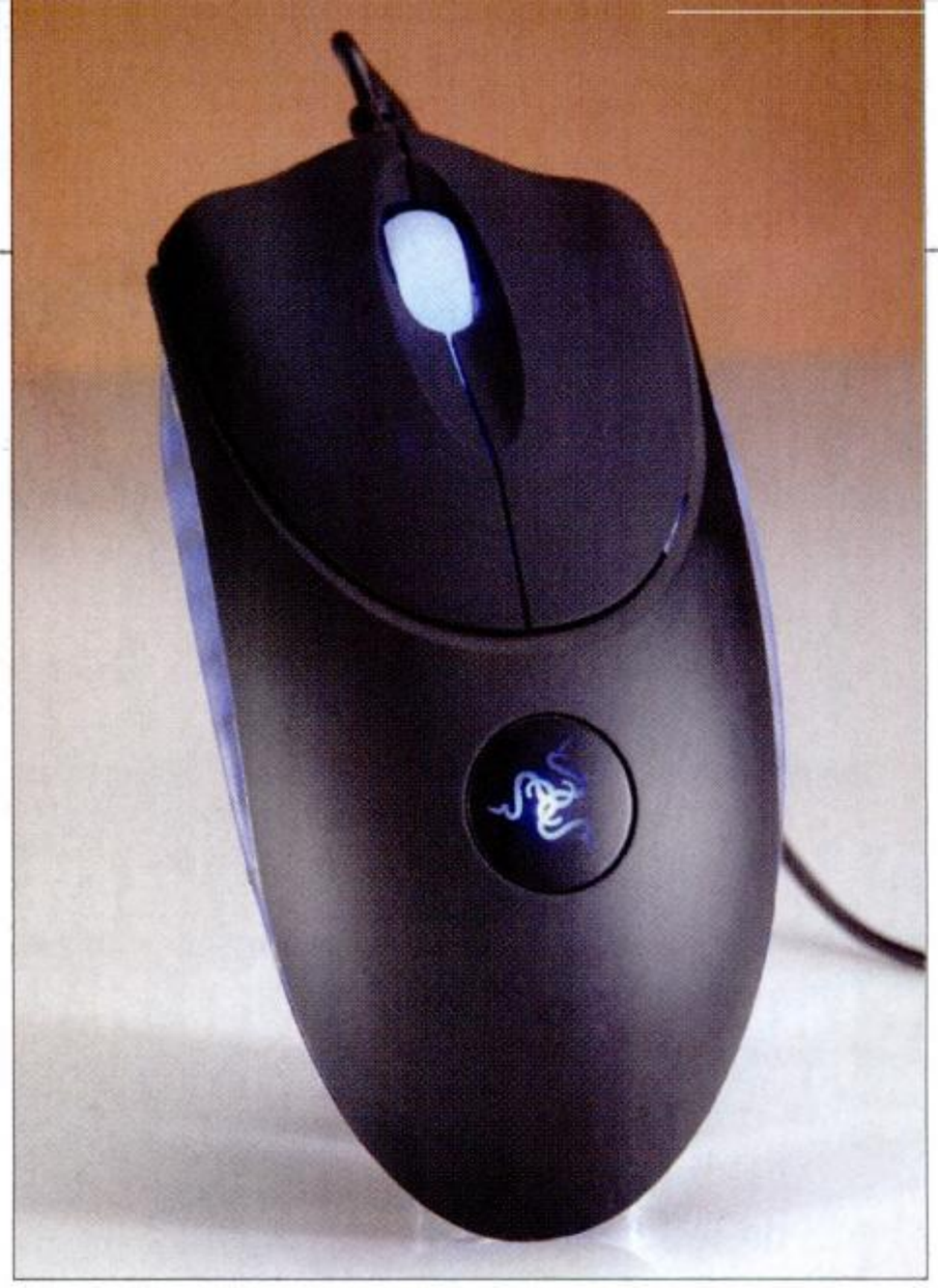
Mousing Mumbo Jumbo

Two laser-powered mice promise more than they can deliver

Logitech's monopoly on the Agilent laser-powered optical-mouse sensor has finally expired, and as a result, we're starting to see more laser mice from other companies, as well as expanded offerings from Logitech, who needs to keep up with the new competition.

This is where the Razer Copperhead and the Logitech MX610 enter. Both use the 2000dpi laser sensor, which tracks on nearly any surface and delivers ultra-smooth performance. The Copperhead is Razer's response to Logitech's G5 gaming mouse (reviewed last month), and Logitech's MX610 is designed for more general-purpose use. While both mice performed reasonably well, both also revealed some nasty flaws.

—WILL SMITH



The Razer Copperhead uses a state-of-the-art laser sensor, but great performance can't make up for its devastating flaws.

LOGITECH MX610

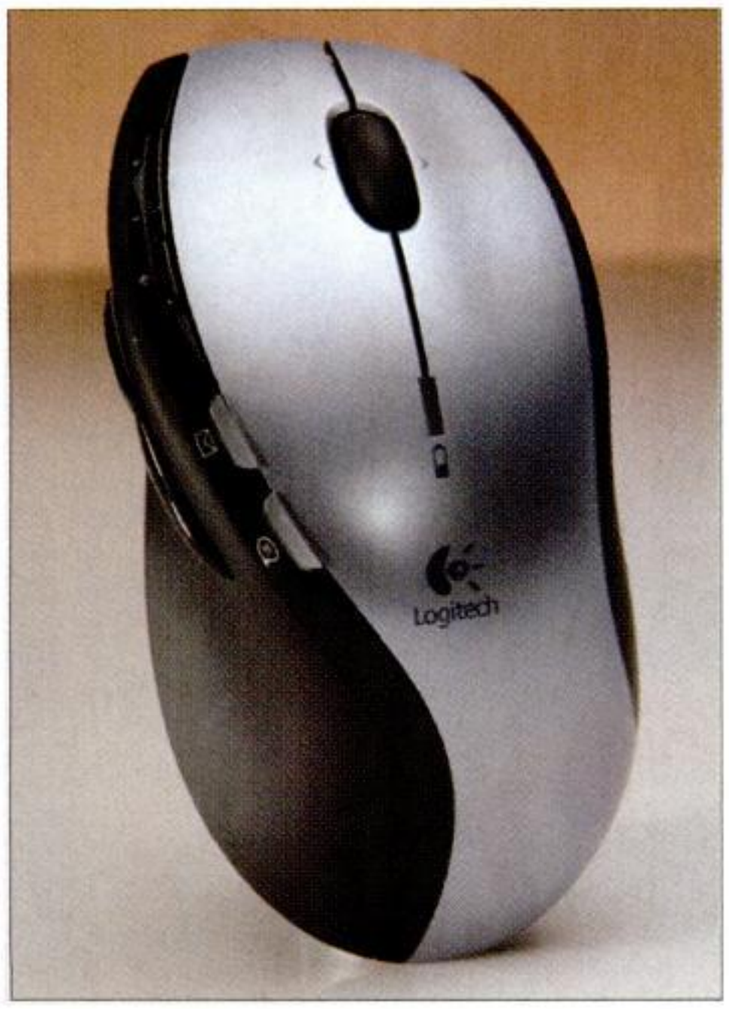
Wouldn't it be nice to have some little status lights that let you know when you've received an email or an instant message, without having to actually wake your computer from its Standby slumber? We think so, and apparently so does Logitech, because that's one of the features of its MX610.

This 2.4GHz cordless laser-sensor mouse uses the same uber-precise technology as Razer's Copperhead, and the results are predictably the same. The only difference is the battery-saving sleep feature, which puts the mouse in a sleep mode after a few seconds of non-use, and causes a slight, but perceptible lag when you first move the rodent. Frankly, we'd rather have a less aggressive battery saver and use rechargeable batteries instead.

The MX610 has the same body shape as the G5, but adds a much-needed second thumb button in addition to the email, IM, and volume-adjustment buttons. It's comfortable in your right hand, but lefties will want a different mouse.

Our big gripe is that the email and IM lights work with a frustratingly short list of apps—*Outlook, Outlook Express, Yahoo IM, MSN Messenger,* and *Windows Messenger.* Not only are other popular clients missing—why no *Thunderbird* or *Trillian?*—but the IM notifier doesn't work with the most popular IM client of all, *AIM*! That's just silly!

LOGITECH MX610
2.4GHZ
Great range and good performance from laser sensor; cheap for wireless.
2.4HZ
Rechargeable batteries would be nice; IM and email lights work with just five apps.
5
$60, www.logitech.com



Don't expect to use the Logitech MX610's fancy instant-message notification light if you use *AOL IM* or *Trillian.*

RAZER COPPERHEAD

The nitwit who thought that updating firmware on a mouse was a good thing should be kicked in the groin. Hard. Updating firmware is a necessary evil that's only acceptable for complex devices whose functionality need change over time, not simple devices like a mouse.

It's a good thing Razer included the ability to update the firmware, though, because out of the box, the mouse just ain't right. Using the shipping firmware, you have to unplug and reconnect the mouse every time you power on your computer, to get the device working. After a firmware update, the mouse still isn't recognized by Razer's configuration software when there's more than one mouse connected to the PC, but at least Windows detects it without any shenanigans.

Performance is virtually identical to the Logitech G5. Tracking proved razor-sharp on every surface we tested, including surfaces such as glass and black metal, which would make most optical mice beg for mercy. And we like Razer's sensitivity-shifting software much better than its previous attempts. Instead of scrolling the mouse wheel to determine sensitivity—which sounds like a good idea on paper, but doesn't work well in practice because it's difficult to hit the setting you expect—the Copperhead has a series of detents at different sensitivities.

We're not thrilled with the physical shape of this mouse. While we appreciate that it's ambidextrous, and we like the oversize main buttons, we wish the "thumb" buttons on either side were placed higher on the mouse, so as to be more easy to use, particularly by the pinky and ring finger.

You can purchase the ProTools kit to add weight to your Copperhead, but the kit costs extra, and using it voids your warranty.

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M-Audio Studiophile LX4

Budget studio monitors that deliver the goods

M-Audio's Studiophile LX4 surround sound system neatly avoids the jack-of-all-trades curse.

We looked at a few studio monitors in 2005, but M-Audio's Studiophile LX4 surround system is the first one we can enthusiastically recommend as both a tool *and* a toy—albeit a cheap tool and an expensive toy.

This speaker system actually consists of two packages: a subwoofer and stereo speakers that sell for $350, and a three-speaker expander system that goes for $200. Put them together and you get a helluva 5.1-channel, self-powered audio system for the money. Thick MDF cabinets (4.5 pounds for each satellite, 22 pounds for the sub) ensure that you hear your source material, and not the enclosures resonating with the beat.

A 125-watt amp in the sub sends 60 watts to its own 8-inch woofer, and 27 watts to each of the five satellites (which house 4-inch polypropylene cone woofers and 1-inch Mylar dome tweeters). Before you scoff at the 125W spec, remember that total amplifier power is much less important than accuracy and efficiency—and the LX4 delivers those crucial attributes in spades.

SPECS

SATELLITE SPEAKERS	4-inch polypropylene cone; 1-inch Mylar dome; magnetically shielded
SATELLITE POWER	27 watts to each channel (Left, Right, Center, Left Surround, Right Surround)
SUBWOOFER	8-inch pulp cone with high-temperature voice coil
SUBWOOFER POWER	60 watts
SIGNAL-TO-NOISE RATIO	>100dB
INPUT CONNECTORS	Six balanced/unbalanced ¼-inch TRS

We paired the LX4 system with Creative's new Sound Blaster X-Fi ExtremeMusic System and tested a variety of games, audio CDs, MP3 files, and DVD-Audio discs. We absolutely dug what we heard. The speakers proved equally adept at delivering energy, excitement, and enough thundering bass to fill a small room whether we were playing *X-Men Legends 2* or the acid jazz of LTJ Bukem's DTS surround-sound disc *Planet Earth.*

The LX4 Surround System isn't a one-size-fits-all solution. It doesn't have a built-in decoder, so it's not appropriate for hooking up directly to a game console or a stand-alone DVD player. And it's a near-field system, so it won't fill a cavernous living room with sound. But if you're looking for surround-sound speakers for mixing and recording, playing games, *and* recreational music listening, you should give this triple-threat a try.

—MICHAEL BROWN

M-AUDIO STUDIOPHILE LX4 **9**

$550 (combined price), www.m-audio.com

MAXIMUM PC KICKASS

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April 2005

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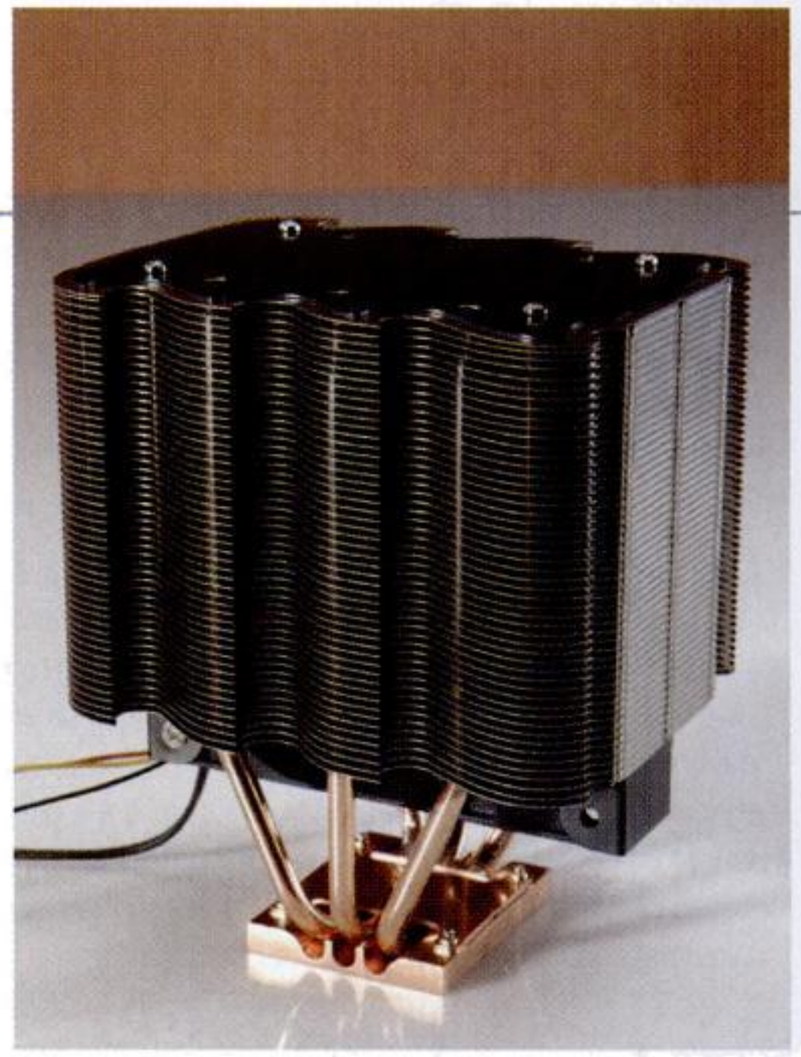
Tuniq Tower 120 CPU Cooler

It's big, but it's also bad (meaning good)



If you look closely you can see the bottom of the 12cm fan dangling down in the middle of the cooler. Tuniq calls this design "midship ventilation" and it works splendidly.

Just when we thought CPU coolers couldn't possibly get any larger, along comes the Tower 120. This sucker is absolutely massive, but don't let that scare you away; it's an exceptional cooler. Despite its obscene girth—or, actually, because of it—the Tower 120 offers tantalizing performance at a surprisingly affordable price—half that of Zalman's prized CNPS9500 cooler.

Though it follows traditional CPU cooler design with its copper base plate, six heatpipes, and big-ass array of aluminum fins, the Tower 120 blazes a new path by dropping a giant adjustable-speed 12cm fan right into the middle of the array of fins, so it sucks air in one side of the cooler and blows it out the other. It's a fantastic alternative to hanging the fan off one side of the fins, which usually creates clearance issues somewhere around the CPU socket.

The only downside to the Tower 120's size is that it requires a motherboard backplate to support its weight. The backplate is included with the kit, but you have to remove the mobo in any P4 (Socket 478 or LGA775) system to install it. Athlon 64 processors use the stock backplate, so no mobo removal is necessary. Once the backplate is in place, the Tower 120 attaches with large thumbscrews that are a cinch to tighten. An included fan speed controller fits into an empty PCI slot.

During testing, the cooler performed exceptionally, posting numbers right up there with the very best CPU coolers we've tested. As we expected, the Tower 120 makes a bit of noise with the fan turned all the way up, but it's remarkably quiet on 90 percent of the available settings.

Sure, it's huge, but every worthwhile CPU cooler is large and in charge. This one is just a bit larger than most, but it certainly earns its keep with stellar performance.

—JOSH NOREM

BENCHMARKS

	TOWER 120	STOCK COOLER
AMD FX-55 TEMPS		
IDLE		
FAN LOW (C)	33	N/A
FAN HIGH (C)	**32**	40
100% LOAD		
FAN LOW (C)	52	N/A
FAN HIGH (C)	**45**	54
INTEL LGA775 3.6GHZ		
IDLE		
FAN LOW (C)	36	N/A
FAN HIGH (C)	**34**	44
100% LOAD		
FAN LOW (C)	48	N/A
FAN HIGH (C)	**44**	63

Best scores are bolded. All temperatures were measured via the onboard sensors, using the utilities provided by the motherboard manufacturer. Idle temperatures were measured after 30 minutes of inactivity and full-load temps were achieved running CPU Burn-in for one hour.

TUNIQ TOWER 120 **9**

$40, www.tuniq.com.tw

MAXIMUM PC KICKASS

Sling Media Slingbox

This little silver streaming box is in a category all its own

Integrate the Slingbox into your home-entertainment system, and you can watch TV anywhere you have Internet access.

The engineers at Sling Media must really identify with *Charlie and the Chocolate Factory's* Mike Teavee, because they've invented a device that enables you to watch your home television anywhere you have Internet access.

Actually, the Slingbox does more than that: It can control any media device (DVD player, camcorder, etc.) outfitted with an infrared remote-control receiver, and then stream that device's A/V output over the Internet to your remote PC. (You can also set up multiple Slingboxes, one for each device). In short, the Slingbox is an ingenious and well-executed idea. Here's how it works.

Simply plug your device's A/V outputs into the Slingbox (we used the S-Video and stereo output from a satellite TV tuner/DVR), hardwire (unfortunately) the Slingbox to your router, and then install the player software onto as many computers as you'd like. Uncommonly thorough documentation made configuring both the Slingbox and our router a snap.

Once you've installed the *SlingPlayer* software and opened a port on your router, you can control whatever device you've plugged into the Slingbox from anywhere you have Internet access. Your commands are sent over the network to the Slingbox, which transmits them to the device through an infrared emitter. Media then streams back to your router, over the Internet, and to your PC.

We took a laptop to a coffee shop with a Wi-Fi hotspot and watched both live TV and programs we had previously recorded on our set-top DVR at home. Native resolution is only 320x240 pixels, so we didn't get anything close to a home-theater experience, but neither did we experience any audio or video breakup.

Our only real gripe with the Slingbox is its goofy formfactor. The silver brick with the "My TV, My Music…" messaging punched into its top just doesn't integrate well with a home-entertainment system.

—MICHAEL BROWN

SLING MEDIA SLINGBOX **8**

$250, www.slingmedia.com

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SOUND TO GO

Logitech V20 Notebook Speakers

Notebook PCs have terrific video capabilities, and most can produce excellent audio, too. Unfortunately, notebooks are usually equipped with dreadful speakers—and headphones won't cut it when you're presenting to a conference room full of people.

We don't think much of using USB to drive speakers, but it makes perfect sense with Logitech's V20 powered notebook speakers. Using a single integrated cable, the speakers not only deliver surprisingly good audio, they also enable you to control your notebook's disc-player functions (play, pause, track skip, volume, and mute) with a set of buttons on the right speaker cabinet. And because they draw power from the bus, you don't need to carry a second power adapter or worry that your speaker batteries will give up the ghost in the middle of your pitch.

The V20s don't get very loud—their diminutive amp delivers just one watt to each satellite. The two-inch high-excursion driver, however, does a commendable job delivering crisp highs and mids, while the three-inch pressure drivers produce a modicum of bass. This isn't hi-fi, by any stretch of the imagination, but neither is it the type of sound system that sucks the enjoyment out of your listening experience.

The speakers, which measure six inches tall and three inches wide, are propped up by kickstands that fold out from the back. The well-padded travel case that comes with the V20s doesn't have a handle, but you'll probably slip the kit into your notebook's case anyway. And the whole package will add just one pound, three ounces to your baggage.

—MICHAEL BROWN

LOGITECH V20 SPEAKERS **7**

$80, www.logitech.com

BACKUP DRIVE

CMS ABSmini 40GB

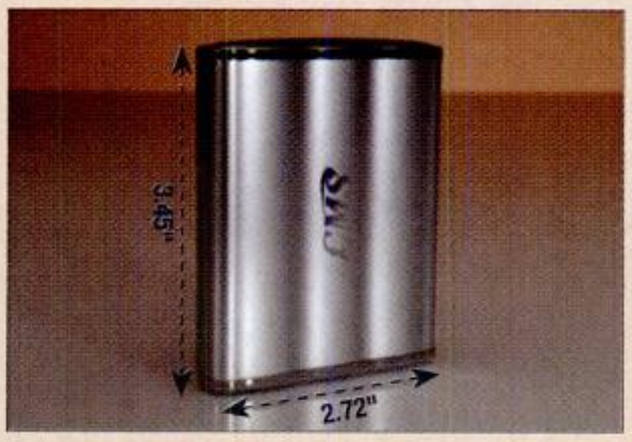
When a USB key just won't cut it, it's time to bust out a handheld 40-gigger like the ABSmini. This rakish drive packs a 1.8-inch 40GB hard drive (also available in 20GB and 60GB) inside its chrome shell, and uses a USB 2.0 bus-powered interface. It achieves its "backup system" status by including both file backup and media-management utilities—handy apps that are often missing from portable drive bundles. Though it's rather pricey, the ABSmini works surprisingly well as a notebook backup system.

Operation is straightforward. Because it's bus-powered, you just plug it into a USB port and—*badaboom*, *badabing*—it works. The USB cable includes a second USB head to use in case a single port doesn't draw enough power, but we never had any issues with it during testing. The only weird thing is that the included USB cable is incredibly thick—so much so that it's difficult to wrap the cable around the drive when you're not using it, so it just dangles awkwardly from the drive.

You'll backup your data with the included *BounceBack Express* utility, which is a very streamlined but powerful backup utility. A media copying utility called *copy2go* is included as well for copying audio and video, but the arcane file structures it copies to the ABSmini are difficult to organize. We love the backup software, but *copy2go* is just silly.

Our only other issue is with the unit's paltry 4,200rpm 1.8-inch hard drive. Its performance is on the slow side, but still on par compared with similar drives. It's expensive, but the ABSmini delivers on all its promises.

—JOSH NOREM



CMS ABSMINI 40GB **8**

$260, www.cmsproducts.com

Nero 7 Ultra Edition

You'll fiddle while Nero burns!

***Nero Home*, the "10-foot" interface included with *Nero 7*, is easily navigable even if you're tucked in bed with a compatible remote.**

Don't let the "bloatware" boogeyman scare you away. Even though the *Nero 7 Ultra Edition* suite now comes with no fewer than 18 applications, you'll never even see the ones you don't want or need. But adventurous types will discover that *Nero 7* has reinvented itself as a suite that's as useful for *enjoying* your media as it is for committing it to disc.

At the fore of this new angle is *Nero Home*, a sleek media-center interface with large, comfy icons that are as easy to see and control from the couch (via a third-party remote control) as they are to access on your PC. Launching *Nero Home* automatically fires up *Nero Scout*, which indexes the media files on all of your drives, or just the drives and folders you specify (in case you want to exclude video of a personal nature). *Nero Home* also includes integrated TV time-shifting that trots you gracefully through the setup process. You can then search through your media files and your TV recordings from the *Nero Home* screen, and even create playlists without losing your proximity to the potato chips. *Nero Scout* also shows up in My Computer, giving you a directory-like alternative structure to access your media.

It's a testament to the maturity of *Nero's* core CD- and DVD-burning application that little has changed—or needed to—other than a nominally cleaner and more configurable interface. With so many applications in the suite, however, *Nero SmartStart* earns its keep as a task-based usher that sends you where you want to go, to do what you want to do, whether it's compressing an (unencrypted) double-layer DVD to fit on a single-layer disc, editing WAV files with *Nero Wave Editor 3,* or importing photographs from an SD card using *Nero Photosnap*.

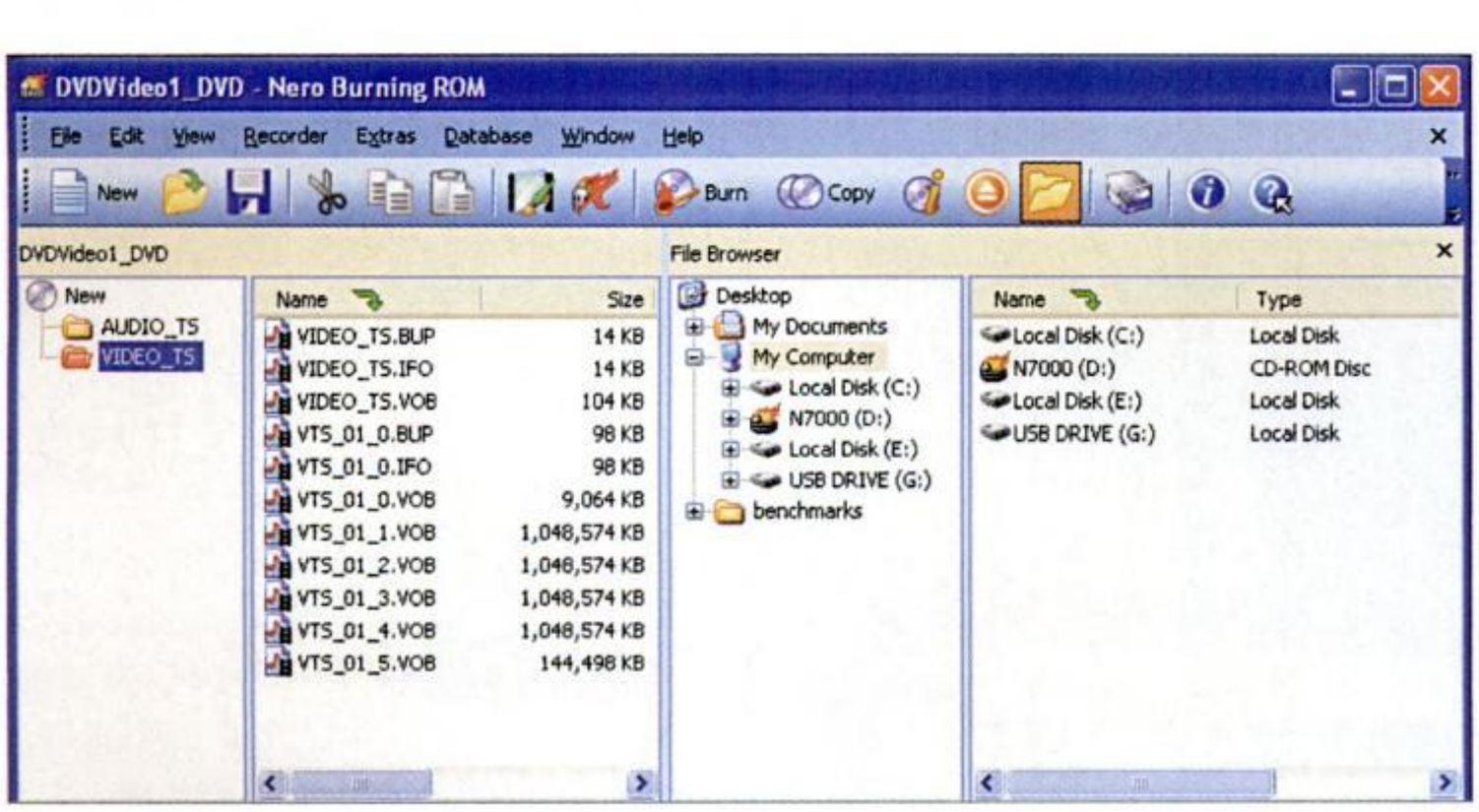
Other applications, however, got the extra lovin' they needed to be useful as stand-alone utilities. *Nero BackItUp*, for example, is now capable of performing scheduled backups to an FTP address, and the new "Shadow Copy" feature can save stumblebums from disaster by making back-up copies at intervals throughout the day, so that a carelessly deleted file can be retrieved from a stored copy.

Another component that got a huge upgrade is audio recording, with *Nero WAV Editor 3* supporting tracks with up to 7.1 channels and automatic track splitting (so your vinyl rip will automatically be imported as individual tracks based on the silence between songs). For heaven's sake, you even get *Nero SoundBox*, a clever and intuitive sonic playground that includes a drum machine and sequencer to create your own "beats," which could bag you a DJ gig in Miami a few months down the road. Or more likely not.

Naturally, we can come up with a couple complaints. We would have liked the media player *Nero ShowTime 2* to support external subtitles in the SUB or SRT formats, and though we're well aware of the capabilities of the homegrown Nero Digital MPEG-4 codec, we'd have preferred to see *Nero* support encoding to other MPEG-4 formats, such as Divx, in addition to Nero Digital.

This is an application suite polished so brightly you can see your reflection in it, and history tells us that *Nero 7 Ultimate Edition* is a whopping value. Two years elapsed between versions 5 and 6, and another two years between 6 and 7, during which time registered users were entitled to download updates and even whole applications added to the suite at no additional charge. We'll go beyond endorsing *Nero 7*—we'll ask, can you afford *not* to have it?

—LOGAN DECKER



***Nero 7* didn't mess with the simple, classic interface we've been happy with for years.**

NERO 7 ULTRA EDITION

DISC DRIVES

Nero 7 makes 18 applications as easy to use and enjoy as a single one.

BEEHIVES

No external subtitle support in *Nero ShowTime 2*; no support for Divx.

9

MAXIMUM PC KICKASS

$100, www.nero.com

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X-Men Legends 2: Rise of Apocalypse

Good and evil unite, only to be beaten by bad network code

Leveling up and getting new powers in *X-Men Legends II* is the RPG equivalent of hitting mutant puberty.

Comic book geeks are in for a treat with *X-Men Legends 2.* Acolytes of the Marvel universe, and especially X-Men fans, will be enamored with how faithfully this action RPG sticks to the source material.

Even though the game is essentially a dungeon-crawling RPG, the action-packed combat and compelling plot successfully mask the more tedious role-playing elements. Through five story acts, you control a small, selectable squad of four mutants who battle their way through New York streets, secret military facilities, the mutant nation of Genosha, and even on to the Savage Land.

A roster of more than 20 good and evil mutants is at your disposal, although you won't have access to all of them in the beginning. Each mutant has a range of upgradeable powers and attributes, some of which are required to solve puzzles or defeat mini-bosses. The densely packed story is filled to the brim with Marvel characters, which makes for surprising and always satisfying cameos. In addition to playable characters, you can unlock game and comic art—a nice bonus. Well-written dialog keeps the game true to its comic roots, and the voice acting fits the personalities of the comic book characters. Most of the missions are very straightforward, requiring you to secure artifacts and key components, with the occasional gnarly boss battle thrown in to spice things up.

One of the much touted features of this sequel is the new multiplayer mode, which allows four players to battle in skirmishes or play through the story together. Unfortunately, the matchmaking capabilities are totally neutered, with no way to browse for games on the Internet. And connectivity is fickle and intermittent. A danger-room sandbox mode offers replayability, but most of the game's value comes from the 25 hours of single-player action.

Effectively realized mutant powers, well-developed characters, and a tight storyline make this game a no-risk investment for anyone aching to immerse themselves in Marvel mythos. It's just a shame that the highly anticipated multiplayer mode is not up to snuff.

—NORMAN CHAN

X-MEN LEGENDS II **8**

$40, www.x-men-legends2.com, ESRB: T

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www.maximumpc.com

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Serious Sam II

More of the same, without all the fun

It's no secret that we love to blow stuff up, yet despite our penchant for destruction, the sequel to *Serious Sam* isn't as fun as the original. Instead of taking what worked in the first game and improving on it, Croteam has seemingly settled for a "more of the same" approach, which is ultimately more tedious than titillating.

Unlike the first game, there is a story in the sequel, but just like the "plot" in an adult movie, it's totally unimportant and only serves to fill time between action sequences, giving your hands time to rest before the next battle. The gist of *Serious Sam II's* story is that you have to visit five worlds to collect five pieces of a medallion in order to fight your arch nemesis, a guy named Mental. Along the way you'll have to destroy thousands of Mental's minions, of course. Just as in the first game, the action is nonstop, with hordes of monsters rushing you at every turn and prolonged, ammo- and energy-draining shootouts against an endless barrage of enemies. Though these types of mega-shootouts were a blast in the original game, this time around they feel really tiresome, with the mayhem seeming more like work than fun. Because the battles are so draining, *SSII* is a game best enjoyed in spurts rather than marathon sessions.

The enemies and weapons are also less intriguing than in the first game, giving the whole experience a rehashed feel. The much-loved charging bulls and screaming bomb guys are back, but the rest of the enemies are rather unremarkable. A lot of the baddies don't seem to belong in their environments—for example, the zombie stockbrokers stick out like sore thumbs in the Mayan village. It just all seems so random!

The enemies in *Serious Sam II* are as wacky and inventive as ever, but they just aren't as fun to fight this go-round.

The weapons offer a lot of variety, but there are simply too many, which makes cycling through the choices in the middle of a firefight totally frustrating. There are a few new weapons and some vehicles that are a lot of fun, but you rarely get to use either in the game. Ammo for the best weapons is usually incredibly sparse, and stints in the vehicles—including a giant hamster ball of death that Sam rolls around inside of—are disappointingly short and woefully infrequent.

The coolest feature of *SSII* is the eight-player co-op mode that takes the place of a standard tacked-on deathmatch. Although we didn't get a chance to test it, co-op seems like the perfect fit for this game's continuous action.

While *Serious Sam II* doesn't suffer from any fatal flaws or crappy code, the franchise's formula just isn't as fun the second time around.

—JOSH NOREM

SERIOUS SAM II

+ SHOOTING BAD GUYS

Insane amounts of destruction, great graphics, and good humor.

– SHOOTING HEROIN

Repetitive, and lacks the first game's special something.

6

$30, www.serioussam2.com, ESRB: M

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Brothers in Arms: Earned in Blood

Smarter enemies, better scenarios, unbelievable action

Anyone who's read Stephen Ambrose's exquisite history of the WW2 exploits of the 101st Airborne's Easy Company, *Band of Brothers*, or seen the HBO miniseries of the same name, is going to feel right at home with *Brothers in Arms: Earned in Blood*. In *EiB*, you play a paratrooper in the 101st Airborne, and you start by parachuting into Normandy on June 6, 1944.

Earned in Blood continues the story started in the first *Brothers in Arms* game—*The Road to Hill 30*—but from the perspective of a different soldier. Some of the battles are similar to those in the first game, but because your character and objectives are different, you won't mistake this for an expansion pack.

The thing that separates *Brothers in Arms* games from your traditional *Medal of Honor*-style shoot-'em-up is the emphasis on realism over arcade-style action. Aiming and firing weapons is more true to life—you won't make many headshots at 10 yards with a Luger here, and even hitting targets with a rifle at range requires crouching and careful aim.

Occasionally, you'll pick up help from a tank, which makes assaulting machine-gun nests a piece of cake.

Only by laying down effective cover fire and flanking the German positions will you succeed in *Earned in Blood.*

Although there is a mission-goals screen, it's not necessary if you pay attention to the briefings from your commanding officers.

Earned in Blood emphasizes tactics over pure twitch skill. Finding appropriate cover, setting up firing positions, and covering your flanks is crucial. To handle these tasks, you have two teams—a fire team and an assault team. A basic engagement goes like this: Get your fire team in position to put suppressing fire on the enemy, then move your assault team to a better spot and have them apply suppressing fire. Then, your fire team leapfrogs the assault team. Eventually, you either move one team into position to flank the enemy and flush them from cover or you have to charge the fortified Germans. There are multiple ways to approach every engagement, and some are definitely better than others. The only thing a solo charge on a fortified German position will get you in *EiB* is a military funeral and death benefits.

The biggest complaint about the original *BiA* was the slightly sub-par AI—for both squad mates and enemies. The enemies would cower behind cover for hours rather than move to a better position or try to flank you, and your squad mates couldn't figure out where they should go to get a bead on a target unless you specifically told them. Both of these problems have been fixed in *Earned in Blood.* In fact, the enemy AI is among the best we've ever experienced. Enemies not only flank you, they'll flee the battlefield, or even make desperate suicide charges. Likewise, your squad's AI is much improved. Instead of running across a field of fire to get from point A to point B, they stay under cover. They're even capable of finding a good spot to take potshots at Gerry without too much hand-holding.

The placement and variety of cover objects feels much more natural this time around. Instead of always cowering behind stone fences, you'll find yourself hiding behind trees, cars, boxes, and even the occasional burned-out tank. Of course, you need to constantly keep moving. If you linger too long in any one spot, nearby mortar teams will zero in on your position and bring your foot tour of France to a halt.

Multiplayer includes the same objectives-based two-on-two game from *The Road to Hill 30,* but there's also an interesting Skirmish mode, which gives you a series of single-player or co-op challenges to complete.

—WILL SMITH

BROTHERS IN ARMS

+ FLANKING

Basic tactics and realistic weapons make a unique WW2 experience.

– BEING FLANKED

Sometimes frustrating; can only save at predefined checkpoints.

9

MAXIMUM PC KICKASS

$50, www.brothersinarmsgame.com, ESRB:M

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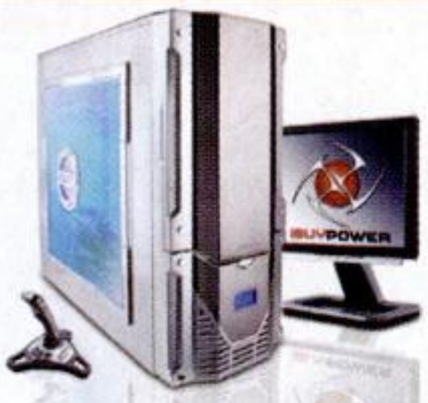

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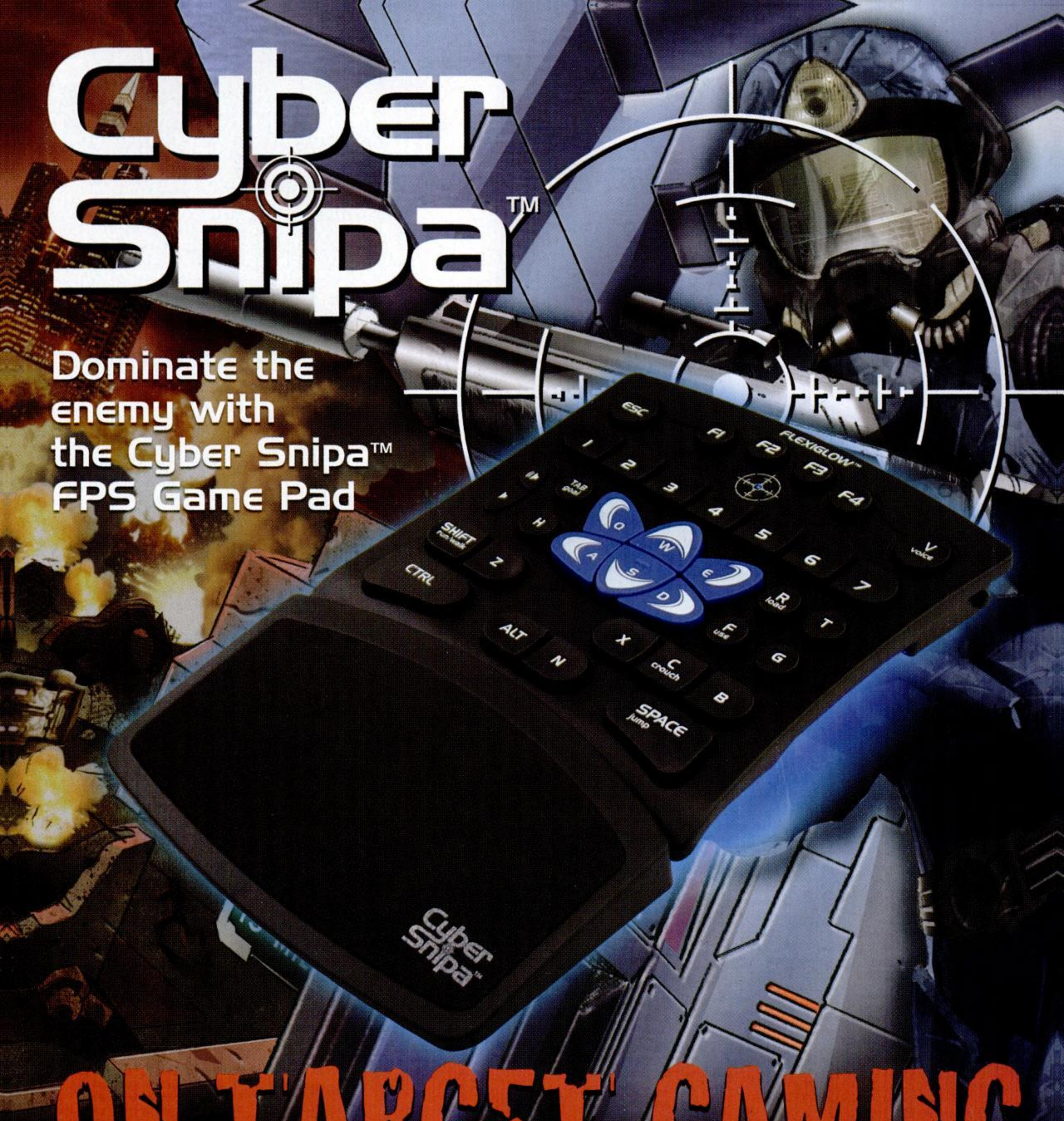

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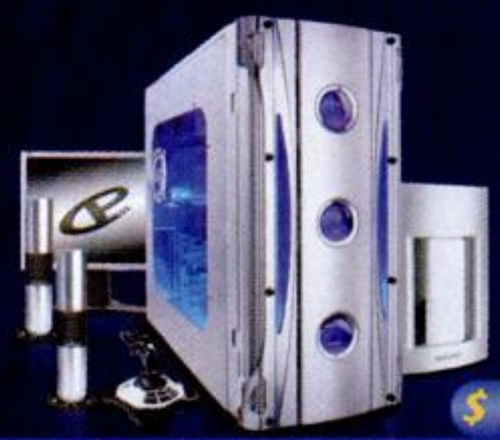

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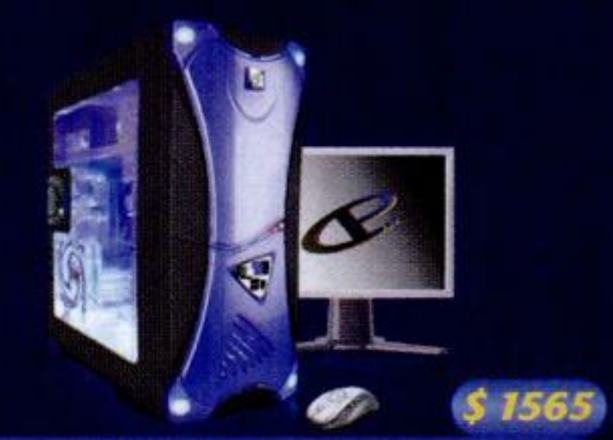

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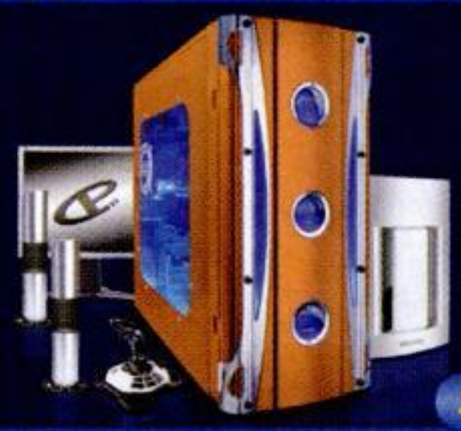

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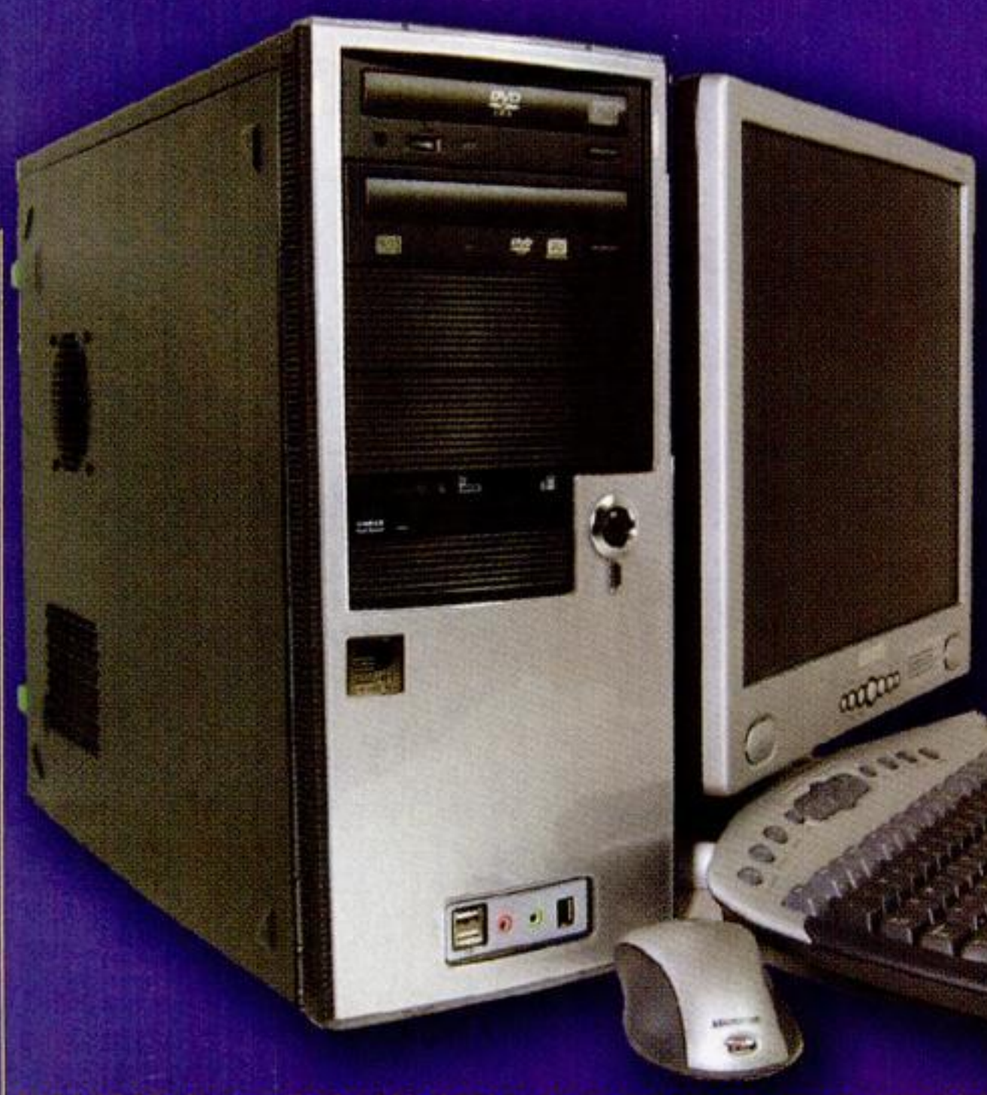

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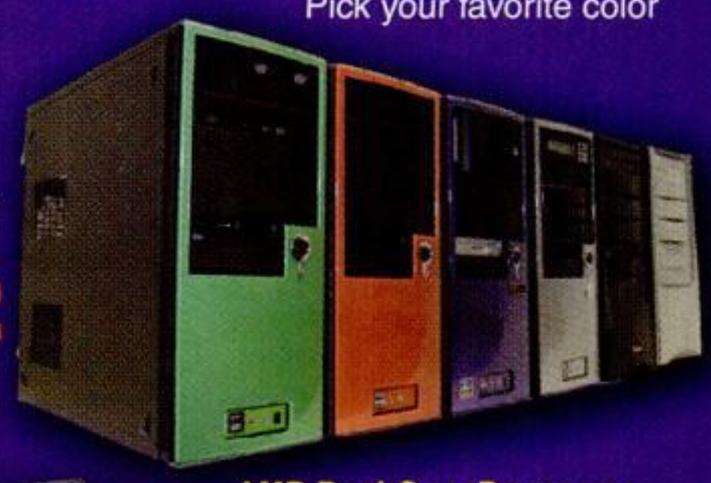

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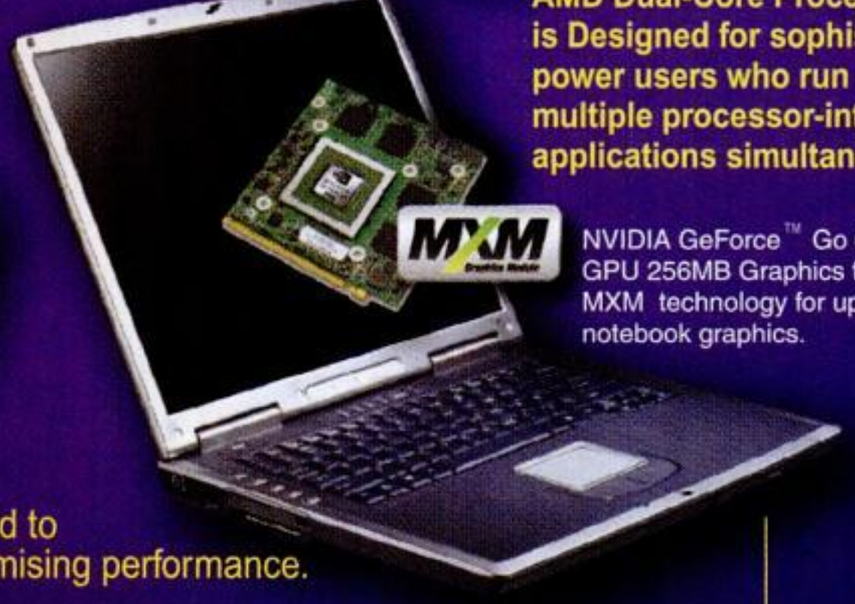

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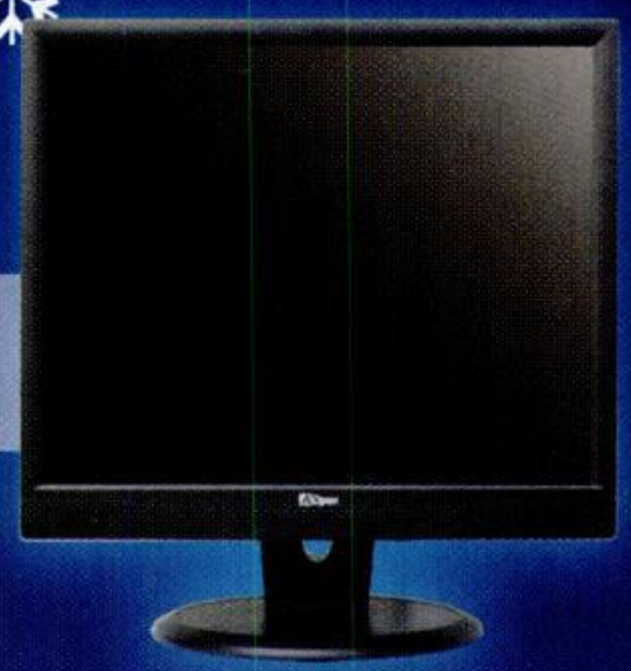

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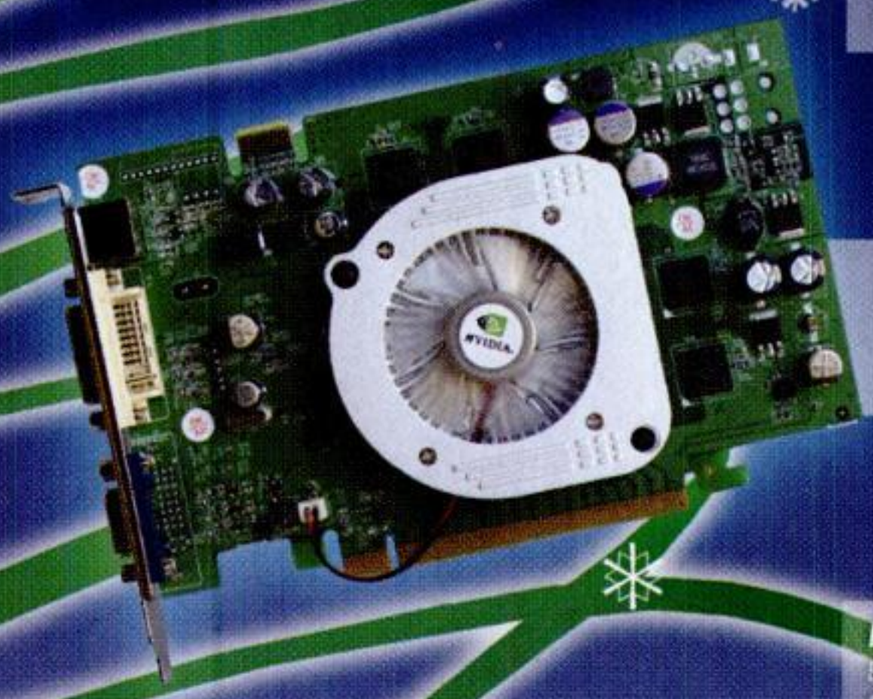

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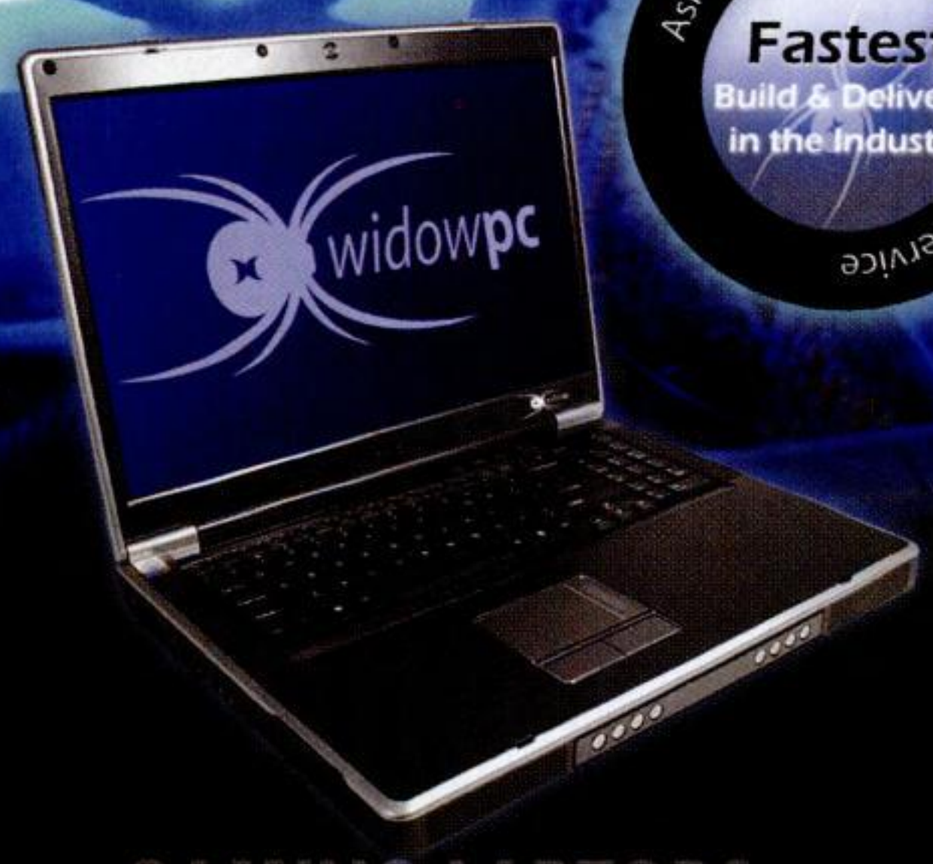

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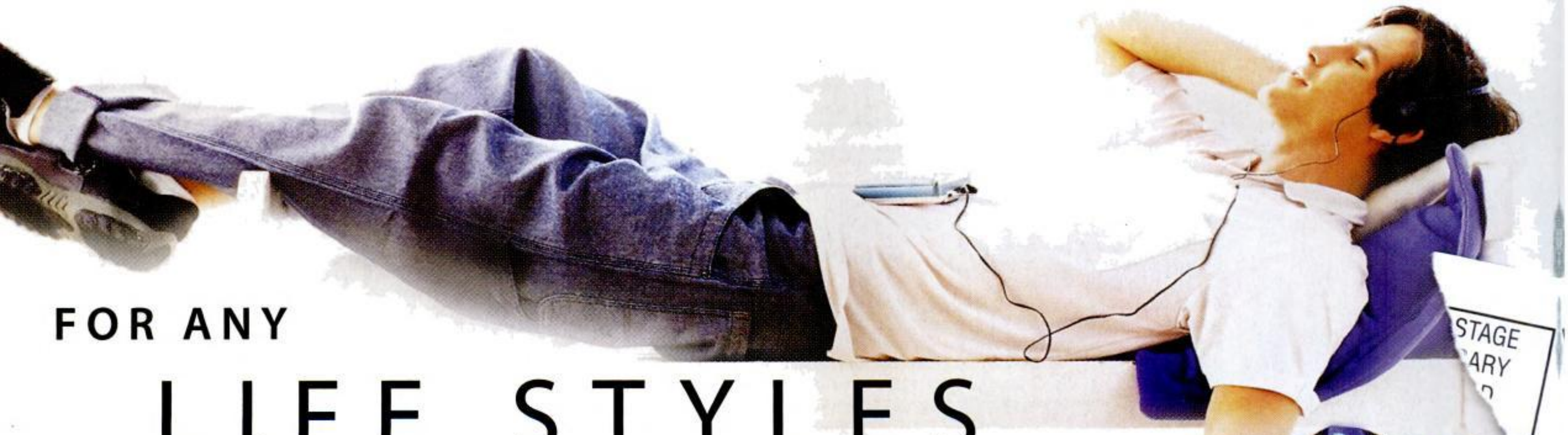

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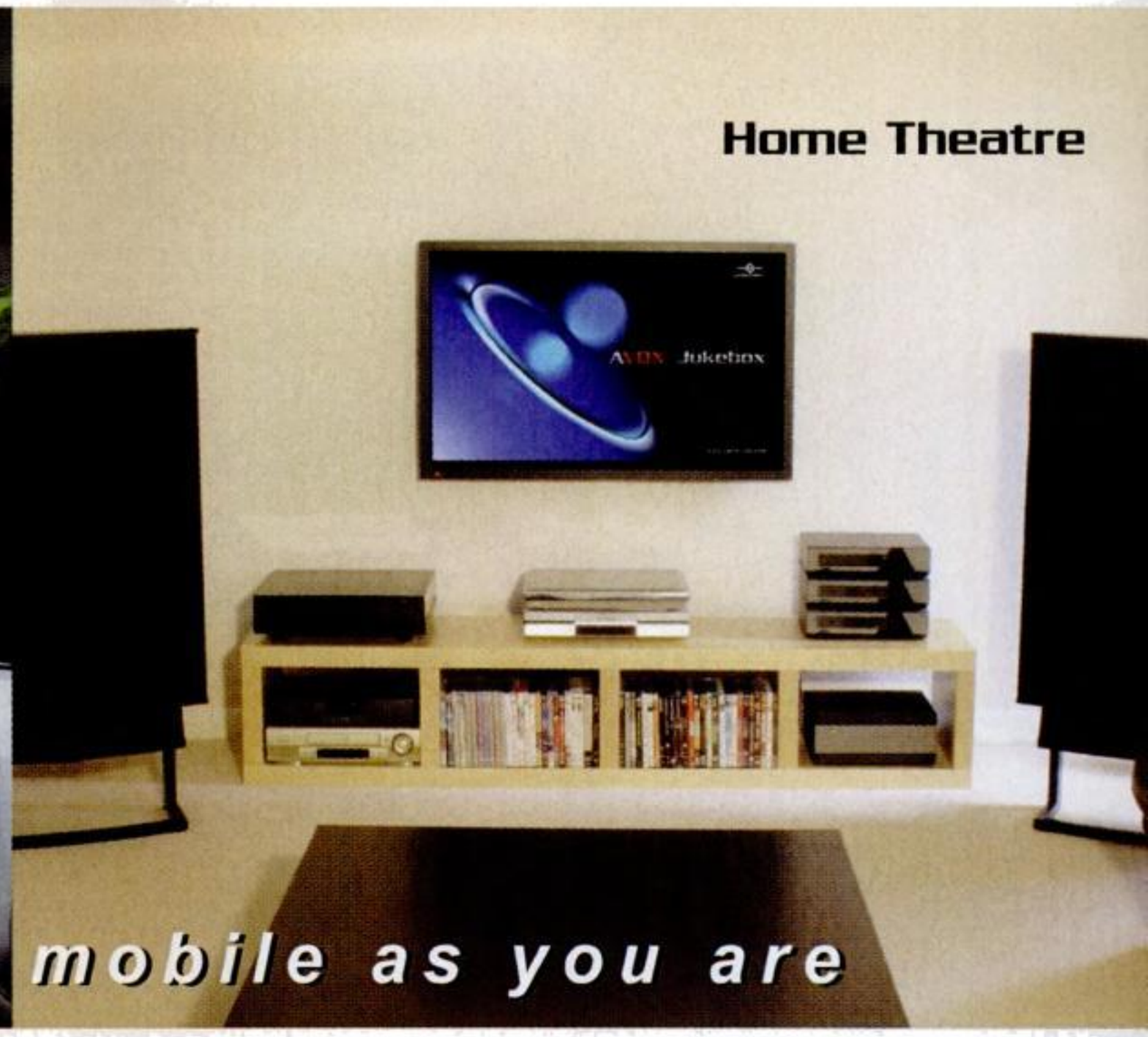

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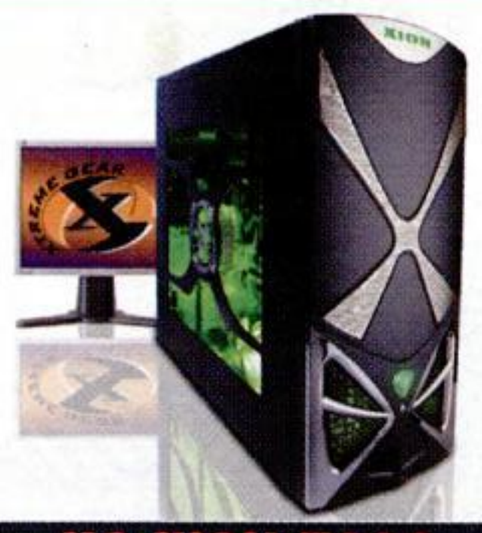

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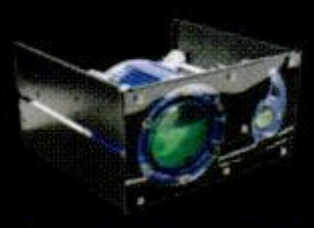

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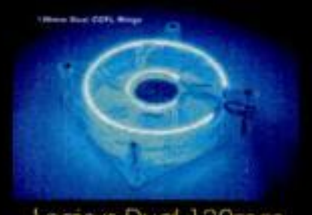

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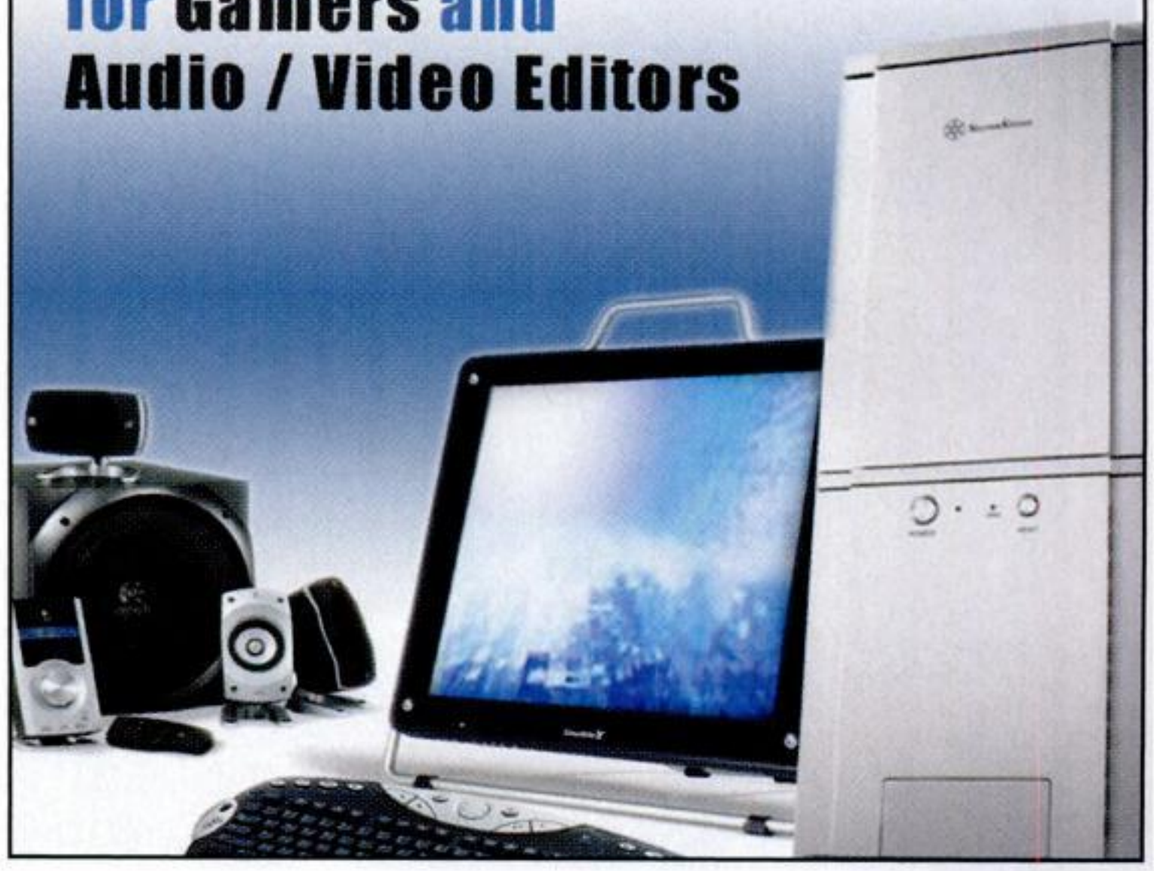

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SYSTEM RESTORE AND XP X64

*In the November issue of **Maximum PC**, there's an article discussing the history of Windows ("Happy Birthday, Windows"). In the section about Windows XP Professional x64, it says System Restore is not available in the OS. But if you look at the screenshot directly above the paragraph, the top left tab on the System Properties window for x64 says "System Restore." As a user of x64 myself, I can attest to the fact that System Restore is indeed present in XP x64.*

—Doug McCloud

OS X FOR X86 AND YOU

I have come upon a website that has a guide for running Mac OS X (the x86 version for developers) on an Intel PC with SSE2 and SSE3 capabilities. My question is: If it does run, will it be fast? Or will it be just painfully slow. Also what about its hardware driver compatibilities?

—John Kenneth Ibanez

EDITOR IN CHIEF WILL SMITH RESPONDS: We haven't actually tried OS X for x86 on a non-Apple machine in the Lab, because we'd have to download an image of the OS, which we don't have a license to use—unless you're a registered Apple developer who bought a devkit, OS X for Intel is off-limits. That said, we do have some "friends" who have OS X running on their own SSE3-equipped machines and they've told us about their experiences.

According to our sources, the Intel build of OS X runs both native OS X apps and the new OS X x86 native apps at the same speed—very fast. In fact, one such user has a difficult time telling the difference between his Intel box and a dual-G5 powered Mac. He has hit only a few snags: Anything that requires the G5's Altivec engine chokes, and hardware support is limited to the gear that's in Apple's devkit box.

At *Maximum PC* we're indeed interested in running OS X on our own hardware. But we'll hold off until Apple sees the light and releases OS X for all Intel machines, rather than build a limited config just to run it (illegally) ourselves.

SUPERB SUPERLATIVES

In reference to your review of nVidia's GeForce 7800 GTX (September 2005), you are misusing the word "ultimate." As wonderful as the card might be, ultimate means "beyond which there is no advance." In the context of ever-advancing technology, such a claim is clearly rubbish as a better card is bound to appear in due course.

Couldn't you cut out the hyperbole (exaggeration) as it's manifestly ludicrous, patronizing, and technically inept of you to indulge in such BS!

—Frank Rome

EXECUTIVE EDITOR MICHAEL BROWN RESPONDS: As much as we dig the 7800 GTX today, we know—indeed, we kneel down and pray to the technology gods before we lay our heads down to sleep each night—that some bright, shiny, new GPU will soon eclipse it. In fact, if our fervent prayers are answered, this mystical chip will emerge from a design lab heretofore unknown to the world, humbling both ATI and nVidia and forcing both to return to their proverbial drawing boards in a quest to create a product even more potent! In other words, lighten up, Frank.

WHAT'S IN A NAME?

As I was shaving the other morning, I started thinking about the new OS from MS: Vista. Vista? Is this an operating system or a new hybrid car? I suspect that Vista will be to XP what Millennium was to 98. Microsoft might be starting to show a pattern when christening an OS with a name—which they pay someone to think up—rather than numbers/letters.

—Steve G.

SIX OF ONE...

In your spec charts for videocards based on nVidia's GeForce 7800 GTX, you report memory clock speeds ranging from 600- to 650MHz. Other magazines and websites, however, publish memory clock speeds for the same cards ranging

CUTCOPYPASTE

Apparently, a byline gremlin had its way with our Holiday issue. To set the record straight: The Puget Systems Custom PC was reviewed by Claude McIver, and *Quake 4* was reviewed by Josh Norem.

The Naked Prey

I recall reading in your pages about a case alternative that enables you to easily set up multiple pieces of a PC, because the box is open and all the parts are easily accessed. I've gone though all my back issues and can't seem to find it. Can you point me in the right direction?

—Jeff Robrecht

SENIOR EDITOR GORDON MAH UNG RESPONDS: We use a couple different rag-top designs: High Speed PC's HSPC Tech Station (www.highspeedpc.com), pictured here, and the Senfu Tech Station (www.senfu.com.tw). I prefer the HSPC Tech Station these days, because it sports a nonconductive plastic base, comes in larger sizes, and offers support for add-in cards. The Senfu is the original, but it feels a little rickety.

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from 1.2- to 1.3GHz—twice what you're reporting. Is this some kind of mix-up or am I just missing something?

—Shan B.

EXECUTIVE EDITOR MICHAEL BROWN RESPONDS: Both specs are correct, technically speaking; it's just that we think *our* specs are more correct. Videocards based on the GeForce 7800 GTX use DDR2 memory, so the GPU is able to transfer data to and from memory on both the rising and the falling edges of the memory clock's cycles. DDR2 memory that's clocked at 600MHz, therefore, has an effective clock speed of 1,200MHz (600x2), or 1.2GHz. Marketing weenies for videocard manufacturers like bigger numbers, so they use the effective clock speed, but we prefer to report the actual clock speed.

GAMES PEOPLE PLAY

*I haven't played a computer game in 25 years (really!), but I amuse myself with Adobe **Photoshop** on a daily basis. Your editors provide lots of info on how to build or upgrade a PC for gaming, so how about delivering more tips on how to build a computer for **Photoshop**? For example, would a RAM drive with a few gigs of capacity help improve my PC's **Photoshop** performance?*

—Richard Drdul

SENIOR EDITOR GORDON MAH UNG RESPONDS: *Photoshop* performance boils down to three things: RAM, CPU, and hard drive. Because you work with large files, your first upgrade should be to pack your PC with as much RAM as the motherboard will take. I'm not completely sold on the concept of trading valuable system RAM in favor of a dedicated RAM disk, but users have reported an improvement to *Photoshop* performance when the program uses a RAM disk as its primary scratch disk. As for the CPU, I recommend AMD's Athlon 64 FX-57. Go for the 2.8GHz single-core proc, because very few *Photoshop* functions benefit from dual-processor or dual-core setups.

Finally, you'll want one or more fast drives with lots of space to use as a scratch disk. Western Digital's new 400GB 7,200rpm drive is a good candidate. But you're not likely to see a significant boost in *Photoshop* performance unless you spring for something like Cenatek's Rocket Drive. There are two models of this hardware-based solid-state RAM drive: The 2GB model sells for $1,700 and the 4GB model goes for $3,000. These will pretty much run the PCI bus flat out at 115MB/s.

INQUIRING MINDS

*Can the subwoofer from one of these high-end sound systems damage a hard drive? I think we need a **Maximum PC** "In the Lab" report to settle this issue.*

—Ken Shipman

EXECUTIVE EDITOR MICHAEL BROWN RESPONDS: As much as we enjoy testing hardware, it's probably not necessary for answering this question. A subwoofer poses two infinitesimally small risks to a hard drive: If you were to place a hard drive directly on top of a subwoofer, a thumpin' sub's constant vibration might cause data corruption during a write operation, but it's unlikely the drive itself would be permanently damaged. The magnet inside the speaker cabinet poses a slightly higher risk to a hard drive, because most subwoofers aren't shielded. But here again, you'd have to leave the drive sitting directly on top of the speaker for a very long time.

MICHAEL DELL IS A GIRLY-MAN!

*I enjoyed Claude McIver's review of the Dell XPS 600 in the November issue, but I have a few questions that he didn't answer. First, are any of the components upgradeable with "normal" aftermarket performance parts? For example, can I drop in a Seasonic PSU down the road, or switch out the mobo for a non-Dell part? Second, what's the deal with only 1GB of RAM? How am I supposed to play **Battlefield 2** in all its glory? In my opinion, Dell must ensure aftermarket upgradeability—and boot the lame P4s—before the company can hope to hook diehard geeks and gamers.*

— Andy Mills

SENIOR EDITOR GORDON MAH UNG RESPONDS: Dell uses a 650-watt "workstation-class" PSU in the XPS 600, which runs along the bottom of the machine and cannot be replaced by an off-the-shelf part. You might be able to replace the motherboard with an Athlon 64 board, but we'd consider such a swap to be more of a mod than an upgrade—not to mention a pain in the ass. *Battlefield 2* actually looks the same and plays fine with 1GB of RAM, although the game does seem to load faster (and you avoid the nasty stuttering problem after map loads) with 2GB of RAM. We agree, however, that Dell's insistence on using proprietary components is a sticking point for gear heads like us—and we've said that to the company a number of times. MPC

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IT'S-THE-HARDWARE-STUPID! JANUARY ISSUE

VERSUS

With a powerful blow from our Blade of Benchmarks, *Maximum PC* cuts through the tough decisions PC power-users face, like a hot knife through butter! AMD or Intel? *Revealed!* ATI or nVidia? *Clocked!* Hitachi or Western Digital? *The truth at last.* We back up our endorsements with the hard numbers, so you can spend more time building and playing than shopping and praying.

THE DIGITAL VIDEO CAMERA BUYERS GUIDE

Whether you're a professional or an, ahem, "amateur," these six digital video cameras are about more than just megapixels. We explore and explain every feature, and show you what you can get for some extra cash in a "prosumer" DV cam.

THE $300 PC

What kind of PC can you build for 300 bucks? You'll see next month!

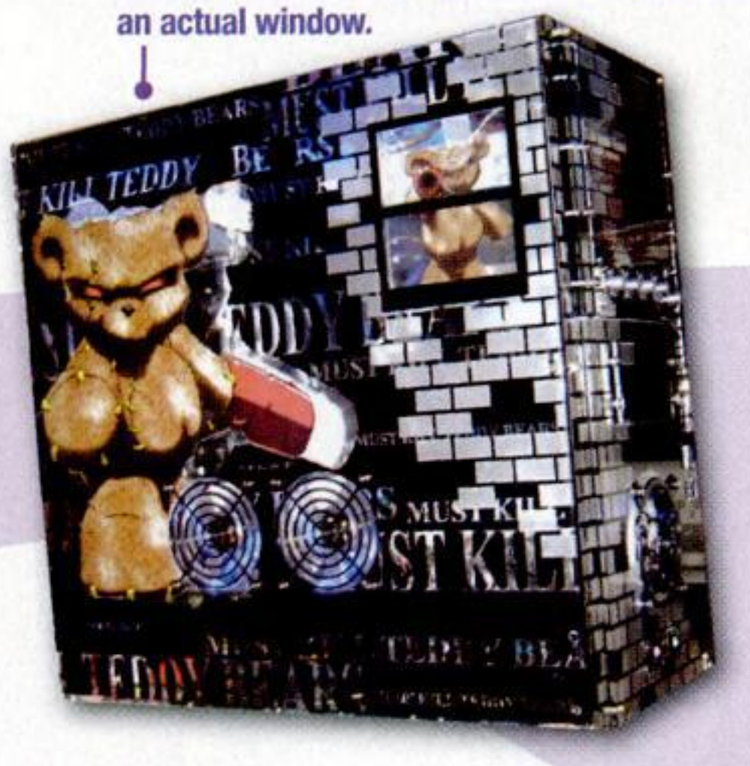
SHELDON BRIGHT'S

MKTB PC

In full, the mod's name is "Must Kill Teddy Bears," a mantra repeated throughout the design.

Sheldon Bright got the idea from a piece of art created by his friend Brandon Steen. Bright recreated Steen's image of two crazed teddies on material that could be backlit, using a 52-inch solvent inkjet printer. Then he mounted the print on the inside of a clear acrylic case, behind the mobo. To the outside of the case, Bright applied a vinyl mask over the main image, as well as masks of all the lettering, then covered the entire case in black vinyl paint. Once the paint was dry and the masks removed, the clear acrylic and interior lights show through only those select areas, lending a frenetic glow to the disturbing motif.

Custom-printed full-color decals provide the spot art. The larger bear is adhered to the outside of the case, while the smaller one is stuck to the drive cage inside the case, behind an actual window.



Details like custom-made fan grills are what turn an intriguing idea into a polished project.

It all started with Brandon Steen's twisted take on the sinister side of stuffed-animaldom.

SPECS

CPU	Athlon 64 2800+
MOBO	Abit NF8-V
GRAPHICS	Sapphire X700 Pro
HARD DRIVES	30GB and 60GB WD
EXTRAS	Sunbeam light bus; Zalman CNPS7000B CPU cooler

"We designed the case so there was enough clear area to see the components and other little extras, but not so much that you see all the messy wiring," says Bright.

If you have a contender for Rig of the Month, e-mail **rig@maximumpc.com** with high-res digital pics and a 300-word write-up.

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